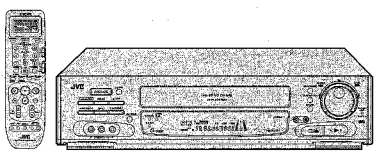
JVC

SERVICE MANUAL

VIDEO CASSETTE RECORDER

HR-J615EA



G-CODE

VHS

PAL

SPECIFICATIONS

GENERAL

Power requirement		: AC 220 – 240 V~, 50/60 Hz
Power consumption		: 24 W
Temperature		
	Operating	: 5°C to 40°C
	Storage	: –20°C to 60°C
Dimensions (WxHxD)		: 400 x 94 x 348 mm
Weight		: 4.8 kg
Format		: VHS PAL standard
Maximum recording time	(SP)	: 240 min. with E-240 video cassette
	(LP)	: 480 min. with E-240 video cassette

VIDEO/AUDIO

Signal system	: PAL-type colour signal and CCIR monochrome signal, 625 lines/50 fields
Recording system	: Rotary two-head helical scan system with slant double-azimuth combination video heads
Signal-to-noise ratio	: 43 dB (Rohde & Schwarz noise meter)
Horizontal resolution	: 250 lines
Frequency range	: 70 Hz to 10,000 Hz
Input/Output	: RCA connectors (VIDEO IN x 2, AUDIO IN x 2 VIDEO OUT x 1, AUDIO OUT x 1)

TUNER/TIMER

TV channel storage capacity		: 80 positions (+AUX position "AU")
Channel coverage		:
VHF	44 – 108 MHz	CH 0 – 5
	137 – 230 MHz	CH 5A – 12
UHF	470 – 862 MHz	CH 28 – 69
Aerial output		: UHF channel 36 (Adjustable 33 – 41)
Memory backup time		: Approx. 3 min.

ACCESSORIES

Provided accessories	: Aerial cable, Infrared remote control unit, "R6" battery x 2, Video cable, Audio cable, AC power cord

Specifications shown are for SP mode unless otherwise specified.
Design and specifications subject to change without notice.

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Important Safety Precautions

Prior to shipment from the factory, JVC products are strictly inspected to conform with the recognized product safety and electrical codes of the countries in which they are to be sold. However, in order to maintain such compliance, it is equally important to implement the following precautions when a set is being serviced.

● Precautions during Servicing

1. Locations requiring special caution are denoted by labels and inscriptions on the cabinet, chassis and certain parts of the product. When performing service, be sure to read and comply with these and other cautionary notices appearing in the operation and service manuals.

2. Parts identified by the ⚠ symbol and shaded (▨) parts are critical for safety.
   Replace only with specified part numbers.
   Note: Parts in this category also include those specified to comply with X-ray emission standards for products using cathode ray tubes and those specified for compliance with various regulations regarding spurious radiation emission.

3. Fuse replacement caution notice.
   Caution for continued protection against fire hazard.
   Replace only with same type and rated fuse(s) as specified.

4. Use specified internal wiring. Note especially:
   1) Wires covered with PVC tubing
   2) Double insulated wires
   3) High voltage leads

5. Use specified insulating materials for hazardous live parts. Note especially:
   1) Insulation Tape
   2) PVC tubing
   3) Spacers
   4) Insulation sheets for transistors
   5) Barrier

6. When replacing AC primary side components (transformers, power cords, noise blocking capacitors, etc.) wrap ends of wires securely about the terminals before soldering.

Fig. 1

7. Observe that wires do not contact heat producing parts (heat-sinks, oxide metal film resistors, fusible resistors, etc.)

8. Check that replaced wires do not contact sharp edged or pointed parts.

9. When a power cord has been replaced, check that 10–15 kg of force in any direction will not loosen it.

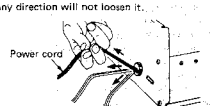


Fig. 2

10. Also check areas surrounding repaired locations.

11. Products using cathode ray tubes (CRTs)
    In regard to such products, the cathode ray tubes themselves, the high voltage circuits, and related circuits are specified for compliance with recognized codes pertaining to X-ray emission. Consequently, when servicing these products, replace the cathode ray tubes and other parts with only the specified parts. Under no circumstances attempt to modify these circuits. Unauthorized modification can increase the high voltage value and cause X-ray emission from the cathode ray tube.

12. Crimp type wire connector
    In such cases as when replacing the power transformer in sets where the connections between the power cord and power transformer primary lead wires are performed using crimp type connectors, if replacing the connectors is unavoidable, in order to prevent safety hazards, perform carefully and precisely according to the following steps.
    1) **Connector part number** : E03830-001
    2) **Required tool** : Connector crimping tool of the proper type which will not damage insulated parts.
    3) **Replacement procedure**
       (1) Remove the old connector by cutting the wires at a point close to the connector.
       Important : Do not reuse a connector (discard it).

Fig. 3

(2) Strip about 15 mm of the insulation from the ends of the wires. If the wires are stranded, twist the strands to avoid frayed conductors.

Fig. 4

(3) Align the lengths of the wires to be connected. Insert the wires fully into the connector.

Fig. 5

(4) As shown in Fig. 6, use the crimping tool to crimp the metal sleeve at the center position. Be sure to crimp fully to the complete closure of the tool.

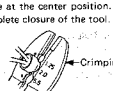


Fig. 6

(5) Check the four points noted in Fig. 7.

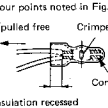

Not easily pulled free
Crimped at approx. center of metal sleeve
Conductors extended
Wire insulation recessed more than 4 mm

Fig. 7

● Safety Check after Servicing

Examine the area surrounding the repaired location for damage or deterioration. Observe that screws, parts and wires have been returned to original positions. Afterwards, perform the following tests and confirm the specified values in order to verify compliance with safety standards.

1. Insulation resistance test
Confirm the specified insulation resistance or greater between power cord plug prongs and externally exposed parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table 1 below.

2. Dielectric strength test
Confirm specified dielectric strength or greater between power cord plug prongs and exposed accessible parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table 1 below.

3. Clearance distance
When replacing primary circuit components, confirm specified clearance distance (d), (d') between soldered terminals, and between terminals and surrounding metallic parts. See table 1 below.

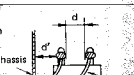


Fig. 8

4. Leakage current test
Confirm specified or lower leakage current between earth ground/power cord plug prongs and externally exposed accessible parts (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.).
Measuring Method: (Power ON)
Insert load Z between earth ground/power cord plug prongs and externally exposed accessible parts. Use an AC voltmeter to measure across both terminals of load Z. See figure 9 and following table 2.

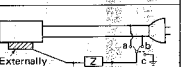


Fig. 9

5. Grounding (Class I model only)
Confirm specified or lower grounding impedance between earth pin in AC inlet and externally exposed accessible parts (Video in, Video out, Audio in, Audio out or Fixing screw etc.).
Measuring Method:
Connect milli ohm meter between earth pin in AC inlet and exposed accessible parts. See figure 10 and grounding specifications.

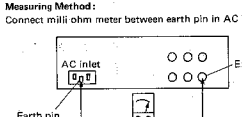


Fig. 10

Grounding Specifications

Region	Grounding Impedance (Z)
USA & Canada	Z ≦ 0.1 ohm
Europe & Australia	Z ≦ 0.5 ohm

AC Line Voltage	Region	Insulation Resistance (R)	Dielectric Strength	Clearance Distance (d), (d')
100 V	Japan	R ≧ 1 MΩ/500 V DC	AC 1 kV 1 minute	d, d' ≧ 3 mm
100 to 240 V			AC 1.5 kV 1 minute	d, d' ≧ 4 mm
110 to 130 V	USA & Canada	—	AC 1 kV 1 minute	d, d' ≧ 3.2 mm
110 to 130 V 200 to 240 V	Europe & Australia	R ≧ 10 MΩ /500 V DC	AC 3 kV 1 minute (Class II) AC 1.5 kV 1 minute (Class I)	d ≧ 4 mm d' ≧ 8 mm (Power cord) d' ≧ 6 mm (Primary wire)

Table 1 Specifications for each region

AC Line Voltage	Region	Load Z	Leakage Current (i)	a, b, c
100 V	Japan	1 kΩ	i ≦ 1 mA rms	Exposed accessible parts
110 to 130 V	USA & Canada	0.15 µF, 1.5 kΩ	i ≦ 0.5 mA rms	Exposed accessible parts
110 to 130 V 220 to 240 V	Europe & Australia	2 kΩ	i ≦ 0.7 mA peak i ≦ 2 mA dc	Antenna earth terminals
		50 kΩ	i ≦ 0.7 mA peak i ≦ 2 mA dc	Other terminals

Table 2 Leakage current specifications for each region

Note: These tables are unofficial and for reference only. Be sure to confirm the precise values for your particular country and locality.

INSTRUCTIONS

Safety Precautions

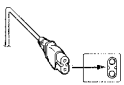
The rating plate and the safety caution are on the rear of the unit.

WARNING: DANGEROUS VOLTAGE INSIDE
WARNING: TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS UNIT TO RAIN OR MOISTURE.

The OPERATE button does not completely shut off mains power from the unit, but switches operating current on and off.

This unit is produced to comply with Directives 76/889/EEC, 82/499/EEC, 87/308/EEC and Standard IEC Publ. 65.

CAUTION



- To avoid electric shock or damage to the unit, first firmly insert the small end of the AC power cord into the recorder until it is no longer wobbly, and then plug the larger end of the AC power cord into an AC outlet.
- When you are not using the recorder for a long period of time, it is recommended that you disconnect the power cord from the AC outlet.
- Dangerous voltage inside. Refer internal servicing to qualified service personnel. To prevent electric shock or fire hazard, remove the power cord from the AC outlet prior to connecting or disconnecting any signal lead or aerial.

IMPORTANT:
- It may be unlawful to record or play back copyrighted material without the consent of the copyright owner.
- Please read the "Precautions" section of this instruction manual before installing or operating the recorder.

Video tapes recorded with this video recorder in the LP (Long Play) mode cannot be played back on a single-speed video recorder.

VHS HQ G-CODE

- Only cassettes marked "VHS" can be used with this video recorder.
- HQ VHS is compatible with existing VHS equipment.
- G-Code is a trademark applied for by Gemstar Development Corp. G-Code system is manufactured under license from Gemstar Development Corporation.

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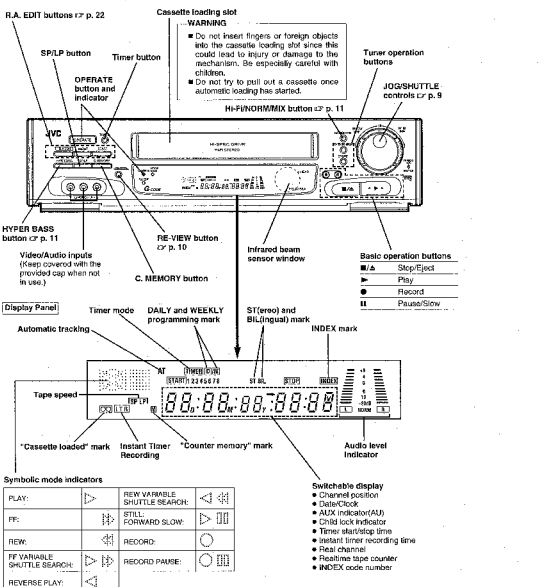
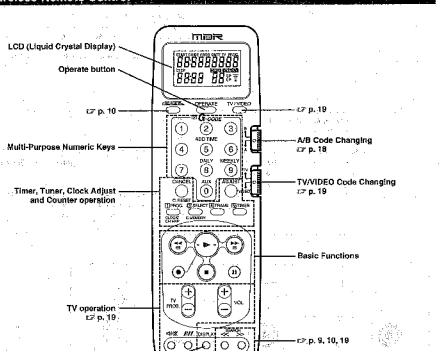
Controls And Indicators

Front Panel



Controls And Indicators (cont'd)

Wireless Remote Control



Installing Batteries

1. Open the battery compartment cover.
2. Insert 2 "R6"-size batteries (provided) in the correct directions.
3. Replace the cover.

How To Use

The remote control can operate most of your video recorder's functions, as well as basic functions of TV sets of JVC and other brands. ☞ p. 19.

- Point the remote control toward the sensor window.
- The maximum operating distance of the remote control is about 8 m.

Connections

It's essential that your video recorder be properly connected. Follow these steps carefully. THESE STEPS MUST BE COMPLETED BEFORE ANY VIDEO OPERATION CAN BE PERFORMED.

A RECORDER-TO-TV CONNECTION

RF CONNECTION

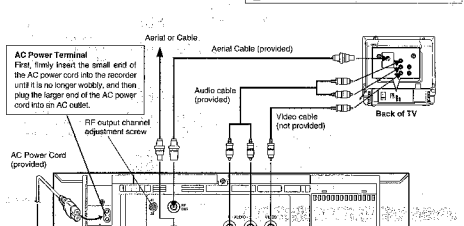
For TV sets without AV input terminals:

1. Connect the TV aerial cable to the recorder.
2. Connect the recorder to the TV's aerial terminal.

AV CONNECTION

For TV sets with AV input terminals:

1. Connect the aerial, recorder and TV as per "RF CONNECTION".
2. Connect the recorder to the TV's AV-IN terminals.


Aerial or Cable
Aerial Cable (provided)
AC Power Terminal
First, firmly insert the small end of the AC power cord into the recorder until it is no longer wobbly, and then plug the larger end of the AC power cord into an AC outlet.
Audio cable (provided)
Video cable (not provided)
Back of TV
RF output channel adjustment screw
AC Power Cord (provided)
AC outlet
TEST switch
Back of Recorder

B TUNE THE TV TO YOUR VIDEO RECORDER

The video recorder sends picture and sound signals via the RF connecting cable to your TV on UHF channel 36.

TEST SIGNAL

1. Turn on the recorder.
2. Set the TEST switch to ON.
3. Set your TV to the video channel. Tune the TV to bring the two vertical white bars on the screen most clearly. (UHF/CH 36)
   - Your TV should be set to the channel designated for use with a video recorder or to a spare channel if there is not a specified video channel on your TV.
4. Reset the TEST switch to OFF.

NOTES:

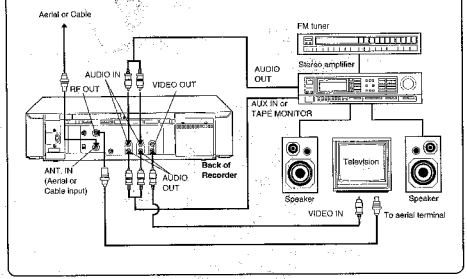
- If CH36 is occupied by a local station, adjust the RF output channel adjustment screw to use another channel between CH33 and CH41 instead.
- If some interference noise is continually seen on the screen, consult your JVC dealer.

IMPORTANT:

To operate the recorder with your TV using the RF connection, it is always necessary to set your TV's channel to the VIDEO channel. With an AV connection, set the TV to the VIDEO (or AV) mode.

Connections (cont'd)

CONNECTING TO HI-FI STEREO SYSTEM



If you have a HI-FI stereo system, you can connect your video recorder to it so that the sound can be heard through your HI-FI system. Please make these additional connections:

HI-FI AUDIO CONNECTION

- Connect the AUDIO IN L and R connectors of the recorder to the recording output terminals of the amplifier.
- Connect the AUDIO OUT L and R connectors of the recorder to the AUX IN or TAPE MONITOR terminals of the amplifier.

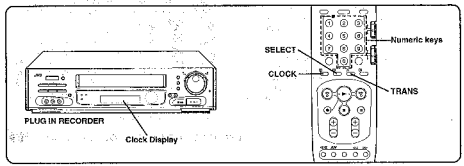
NOTES:

- Make sure L and R are correct when connecting the audio input and output connectors of the recorder to a stereo amplifier.
- If stereo or bilingual TV broadcasts are receivable in your area, this recorder can record them independently of the TV set and play them back through the connected audio system.
- When listening to sound from the connected stereo system, turn down the sound volume of the TV completely.

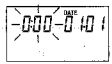
CAUTION:

- This recorder has a dynamic range of more than 90 dB with regards to its hi-fi audio capability. It is recommended that you check the maximum level if you are going to listen to the hi-fi audio signals through a stereo amplifier. A sudden surge in speaker input may cause speaker damage.
- Some speakers and televisions are specially shielded to prevent television interference. If both are of the non-shielded type, do not place the speakers adjacent to the TV set, otherwise the video playback picture may be adversely affected.

Setting The Clock



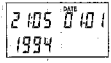
1. Load batteries (☞ p. 4).



2. Press CLOCK.

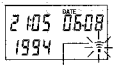
3. Press the appropriate numeric keys to input the time.

- Example: For 21:05, press 2 1 0 5.



4. Press the appropriate numeric keys to input the day, month and year.

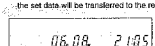
- Example: For 6th August, 1994, press 0 6 0 8 1 9 9 4.



Transfer-ready mark

5. Press TRANS with the remote control directed to the recorder's remote sensor window.

- The remote control's clock will start. At the same time, the set data will be transferred to the recorder.



TO MAKE CORRECTIONS

Press SELECT button so that the item you want to change blinks. Re-input that item. Continue to step 5.

AFTER A POWER CUT

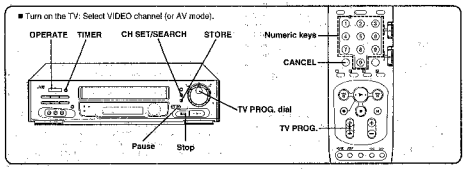
Since your video recorder has a 3-minute backup memory, it will not be affected by short power cuts. If mains power is unavailable for over 3 minutes, however, the recorder's display will reset to 0:00. In such a case, simply transfer the remote control's time to the recorder.

1. Press CLOCK three times.
2. Press TRANS with the remote control directed to the recorder's remote sensor window.

NOTES:

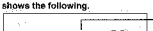
- If the day and month data is invalid (such as 31st April), the month digits are cleared automatically and the day digits will blink. Input again.
- If the year digits are automatically cleared in step 4, it is possible that you have input 29th February for a non-leap year. Input again.
- When the batteries are exhausted, the time display will change to "0:00" and start blinking. Replace all the batteries and set the clock again.

Setting The Tuner



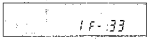
The procedure introduced here lets you assign receivable channels in your area to channel positions on your video recorder's tuner. Once stored, these can be accessed with the TV PROG. buttons or the TV PROG. dial.

1. **Press OPERATE to turn on the recorder.**
2. **Press CH SET/SEARCH until the display panel shows the following.**



Ch = Regular CC = Cable

3. **Press CH SET/SEARCH again briefly to start automatic scanning for receivable channels.**
   - Automatic scanning stops when a station is detected, and the channel position will blink.
   - Holding down CH SET/SEARCH will start reverse search.
   - If you don't want to store the station detected, simply press CH SET/SEARCH to continue automatic scanning.
4. **Press Pause to fine-tune the channel, if necessary.**
   - When the picture is clear, proceed to step 7.
5. **Turn TV PROG. dial so that the picture becomes clear.**

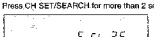


6. **Press Pause.**
7. **Turn the TV PROG. dial to select the channel position where you wish to store that TV station.**

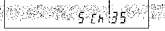
8. **Press STORE to store the station.**
   - The colon will disappear when the station is stored.
9. **Repeat steps 3 through 8 for other receivable channels.**
10. **Press Stop on the recorder to disengage the Channel Set mode.**

TO DELETE STORED CHANNELS

1. Turn TV PROG. dial to select the channel position you want to skip.
2. Press CH SET/SEARCH for more than 2 seconds.



3. Press CANCEL.

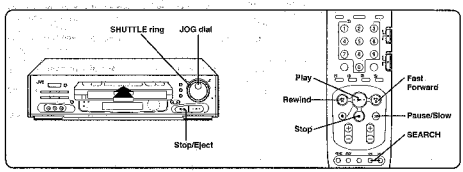


   - The colon will appear when the station is deleted. Channel position 5 can no longer be chosen by TV PROG. dial.
4. Press Stop on the recorder to disengage the Channel Set mode.

TO STORE NEW CHANNELS

1. Press CH SET/SEARCH for more than 2 seconds.
2. Press TIMER.
   - Real channel starts blinking.
3. Press numeric keys to input the number of the real channel you want to store.
4. Press numeric keys to input the number of a vacant channel position.
5. Press STORE to store the channel.
6. Press Stop on the recorder to disengage the Channel Set mode.

Playback



Basic Operations

Preparation
- Turn on the TV.
- Select VIDEO channel (or AV mode).

1. **Load a cassette.**
   - The recorder power will come on automatically.
   - The counter will be reset to "0:00:00" automatically.
   - If the safety tab on the cassette is removed, playback will start automatically.
2. **Press Play to start playback.**
3. **Press Stop to stop playback.**
   - To rewind the tape, press Rewind or turn the SHUTTLE to the left and release it.
   - To fast-forward the tape, press Fast Forward or turn the SHUTTLE to the right and release it.
   - To stop rewind or fast-forward, press Stop.
4. **Press Stop/Eject on the recorder to eject the tape.**

Variable-Speed/High-Speed Search, Still Playback/Frame Advance/Forward Slow Motion

During Playback or Still:
- Press either SEARCH button for variable-speed search.
- The more times the button is pressed, the faster the playback picture will move.
- To decrease speed, press the button for the opposite direction.

During Playback:
- Press Fast Forward for high-speed forward search, or Rewind for high-speed reverse search.
- For short searches, keep Fast Forward or Rewind pressed for more than 2 seconds. When released, normal playback will continue.
- Press Pause/Slow to view a still picture.
- Press again to advance the picture frame by frame.
- Press Pause/Slow for 2 seconds for slow motion.

Other Functions

JOG/SHUTTLE Control

You can view pictures in slow to fast motion, or frame-by-frame.

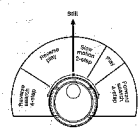
During Playback or Still:

1. Turn the outer ring (SHUTTLE) in either direction. The farther the ring is rotated, the faster the search speed. Releasing the ring stops the picture in the Still mode.
   - For fast-forward with a visible picture, turn the SHUTTLE all the way to the right and release it within 1 second.
   - For rewind with a visible picture, turn the SHUTTLE all the way to the left and release it within 1 second.
   - Slow motion is not possible in the reverse direction.

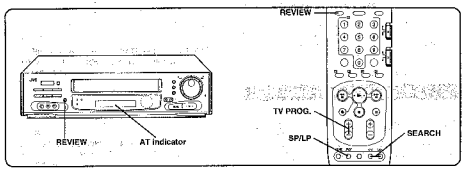
During Playback or Still:

1. Turn the inner dial (JOG) clockwise for jog control. The tape moves forward frame-by-frame at the speed with which the dial is turned.
   - Frame-by-frame playback is not possible in the reverse direction.
   - By rotating the JOG dial counterclockwise at 2 revolutions per second or faster, reverse play is possible.

To resume normal playback, press Play button.



Playback (cont'd)



Other Functions (cont'd)

Manual Tracking

Your video recorder is equipped with automatic tracking control. If there is picture distortion or "breaks" in the sound of Hi-Fi VHS tapes caused by mistracking, you can finely adjust tracking manually.

During Playback:

1. Press ▮▮/▮▮ (SP/LP) for manual override.
   - The AT indicator will go out.
2. Press TV PROG. + or – to adjust tracking.
   - Press ▮▮/▮▮ (SP/LP) to return to automatic tracking.

During Slow:

1. Simply press TV PROG. + or – to adjust tracking.

ReView Function

Simply by pressing a single button, the recorder power comes on, rewinds, and begins playback of the last recording. This makes it easier to "review" the programme you have timer-recorded.

When the recorder power is off:

Press REVIEW.

- After the recorder power comes on, the tape will be rewound to the beginning of the last recording (where the index code is placed) and playback will start automatically.
- To play back a recording located 2 index codes away, press REVIEW twice. You can access any one of up to 9 index codes.
- ReView is not possible while the recorder is in the Timer mode.
- The recorder's REVIEW button lights when timer recording is finished, and blinks while the tape is being rewound.

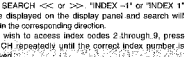
Index Search

Your recorder automatically marks index codes at the beginning of each recording. This function gives you quick access to any one of 9 index codes in either direction.

During Stop:

1. Press SEARCH << or >>. "INDEX –1" or "INDEX 1" will be displayed on the display panel and search will begin in the corresponding direction.
2. If you wish to access index codes 2 through 9, press SEARCH repeatedly until the correct index number is displayed.

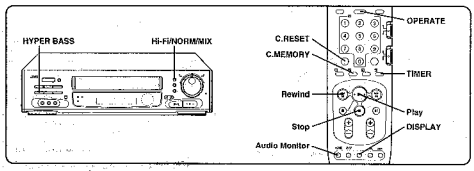
Ex.: To locate the beginning of B from the current position, press SEARCH << twice.
To locate the beginning of D from the current position, press SEARCH >> once.



- When the specified index code is found, playback will start automatically.

NOTES:

- The recorder automatically stops when still continues for more than 5 minutes.
- If the still picture is unstable, use the TV PROG. buttons to correct the picture.
- During search playback, some noise bars will appear.
- There is no audio during search, slow, still, or frame-by-frame playback.
- When playing back LP recordings in the search, still, or frame by frame playback mode, the picture will be distorted, and there may be a loss of colour.
- When a new tape is inserted, the recorder enters the automatic tracking mode automatically.



Repeat Playback

During Playback:

1. Press Play for more than 5 seconds, and release.
   - The Play indicator (▷) on the display panel will blink slowly.
   - The tape will be played all the way to the end 20 times automatically, and then stop.
2. To stop playback at any time, press Stop.

Counter Memory

During Playback:

1. Press DISPLAY until a counter reading appears on the display panel.
2. Press C.RESET at a point you wish to locate later.
   - The counter will read "0:00:00".
3. Press C.MEMORY.
   - The M indicator will light on the display panel.
4. When you wish to return to that point, press Stop and then Rewind.
   - The tape will rewind and stop at about "0:00:00" automatically.
5. To cancel the Counter Memory mode, press C.MEMORY again.

Next Function Memory

Your recorder can memorise what to do after rewind.

During Stop:

For automatic start of playback after the tape is rewound:

1. Press Rewind.
2. Press Play within 2 seconds.

For automatic power off after the tape is rewound:

1. Press Rewind.
2. Press OPERATE within 2 seconds.

For automatic timer standby after the tape is rewound:

1. Press Rewind.
2. Press TIMER within 2 seconds.

Soundtrack Selection

During Playback:

Your video recorder is capable of recording three soundtracks (HIFI L, HIFI R and NORM) simultaneously, and playing back the selected soundtrack.

- Pressing Audio Monitor on the remote control changes the track.

Track: (on display panel)	Use:
L + R	for Hi-Fi stereo tapes.
L	for main audio of bilingual tapes.
R	for sub audio of bilingual tapes.

- Pressing HI-FI/NORM/MIX on the recorder changes the mode.

Mode:	Track: (on display panel)	Use:
HIFI	L and/or R	for Hi-Fi stereo tapes.
NORM	NORM	for audio-dubbed tapes.
MIX	NORM + L and/or R	for audio-dubbed tapes.

NOTE:

- Normally use the L + R position. Then Hi-Fi stereo tapes are played back in stereo, and tapes with normal audio only are played back automatically in the NORM mode.

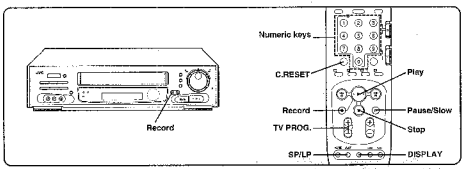
Hyper Bass

You can boost the bass sounds of music videos to make them sound more exciting.

During Playback :

1. Press HYPER BASS.
   - The HYPER BASS indicator will light, and bass sounds will be boosted.
2. Press HYPER BASS again to cancel the Hyper Bass mode.

Recording



Basic Operations

Preparation

- Turn on the TV.
- Select VIDEO channel (or AV mode).

1. **Load a cassette.**
   - The recorder power will come on automatically.
2. **Press TV PROG. or the numeric keys to select the channel you wish to record.**
   - You can also use the recorder's JOG dial to select the channel.
3. **Press SP/LP to select the tape speed.**
4. **Press Record and Play simultaneously.**
5. **Press Pause/Slow to pause recording.**
6. **Press Play to resume recording.**
7. **Press Stop to stop recording.**

NOTES:

- To start recording with the recorder's Record button, press it once on its own.
- After pause, when recording is resumed, a few frames recorded before the pause may be overlapped by the new recording. This is meant to reduce picture distortion and is not a malfunction.
- The recorder automatically stops when record-pause continues for more than 5 minutes.
- If the Record button does not work, check to see if the cassette's safety tab has been removed.
- The channel cannot be changed while recording is in progress. To change the channel, engage the record-pause mode, then change the channel.
- The recorder automatically rewinds when the end of the tape is reached during recording.

Other Functions

To Watch Another Programme While Recording

During Record:

1. Use the channel controls on the TV to select the other channel you wish to view.
   - The programme selected with the TV channel controls will appear on the TV screen while the one selected with the video recorder's channel controls will be recorded on the tape.

Instant Timer Recording (Off Timer)

You can start a recording and then set the recorder to shut off automatically after a set duration.

During Record:

1. Press recorder's Record. "ITR" and "0:30" indications appear, advising that power will switch off after 30 minutes.
2. Press Record again to delay the off-time by 30-minute increments (up to 4 hours).
   - For more precise setting, use the remote control's SELECT and TV PROG. buttons to set the exact time required (possible up to 8 hours and 59 minutes).

Elapsed Recording Time Indication

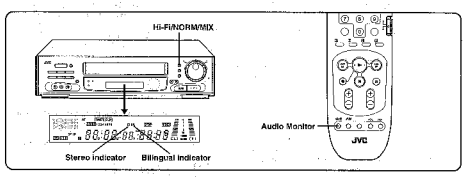
When you need to know the exact time of a recording.

1. Press DISPLAY until a counter reading appears on the display panel.
2. Press C.RESET before starting recording or playback.
   - The counter will be reset to "0:00:00" and show the exact elapsed time as the tape runs.

Display Button

When you wish to check the time, date, or counter reading.

1. Press DISPLAY to display the current clock time.
2. Press DISPLAY again to display the current date.
3. Press DISPLAY again to display the counter reading.



Stereo And Bilingual

Your recorder is equipped with a Sound-Multiplex decoder for reception of stereo and bilingual broadcasts.

- When a stereo programme is being received, the ST indicator lights on the display panel.
- When a bilingual programme is being received, the BIL indicator lights on the display panel.

To Record Stereo Programmes

Stereo programmes are automatically recorded in stereo on the Hi-Fi audio track (with the normal audio track recording mixed L and R channel sound). No special operation is required. Simply follow the basic recording procedure.

- To listen to the stereo soundtrack while recording, select "L+R" with Audio Monitor. (☞p.11

NOTE:

- If the quality of stereo sound being received is poor, the ST indicator will go off, and the broadcast will be received in monaural with better quality.

To Record Bilingual Programmes

Bilingual programmes are automatically recorded in bilingual on the Hi-Fi audio track. The main soundtrack will be recorded on the normal audio track.

- To listen to the Hi-Fi soundtrack during recording, select "L" for Main, and "R" for Sub.
- To listen to the normal soundtrack, select "NORM" with the Hi-Fi/NORM/MIX button on the recorder.

Usable Cassettes And Their Recording Times

This video recorder can record on regular VHS and Super VHS cassettes. However, it will record and play back regular VHS video signals only. It is not possible to play back a recorded Super VHS tape.

Type of Cassette	Recording/Playback Time (minutes)	
	SP Speed	LP Speed
E-240	240	480
E-180	180	360
E-120	120	240
E-90	90	180
E-60	60	120
E-30	30	60

Accidental Erasure Prevention

To prevent accidental recording on a recorded cassette, remove its safety tab. To record on it later, cover the hole with adhesive tape.

Preparation For G-Code Timer Programming

What is G-Code?
For timer-recording to take place, information such as the channel, date, start time and stop time of the programme you wish to record, must be programmed into the recorder's timer memory. The G-Code system condenses all this information into a simple G-Code number.
Since the G-Code number contains information on the channel number, if you live in an area that uses channel numbers that are different from those listed in your TV directory, these "differences" must be input into the remote control. This process is called "Channel Mapping" (CH MAP).

GUIDE PROG. number assignments

AUSTRALIA	
Station Name	GUIDE PROG. number
ABC	2
SEVEN Network	7
NINE Network	9
TEN Network	10
SBS	1

NEW ZEALAND	
Station Name	GUIDE PROG. number
TV ONE	1
CHANNEL 2	2
TV3	3
SKY TV MOVIE	4
SKY TV SPORTS	5
SKY TV NEWS	6
CTV	7
ACTION TV	8

CHECK THE GUIDE PROG. NUMBERS

Preparation
- Make sure you have set the clock. (☞ p. 7)
- Make sure you have set the tuner. (☞ p. 8)
- Get a TV schedule listing (magazine, newspaper, etc.) which carries G-Code numbers.

A Find out the channel position numbers your recorder tunes to when you use the TV PROG. –/+ buttons (the positions you stored on page 8) and write them into the list below.

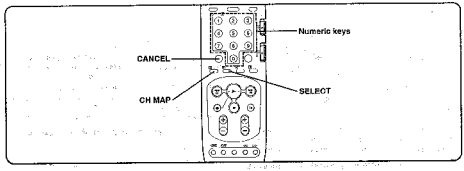
Example: 1, 2, 3, 4, 5, 8, 10, 12

B Look through the TV listing and find out the broadcast station name of each of the channels.

C Find out the GUIDE PROG. numbers of each of the stations referring to "GUIDE PROG. number assignments" on the left and write them into the list below.

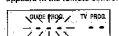
A Channel on your recorder (TV PROG. number)	B Station name	C GUIDE PROG. number
(ex.) 1	SBS	1
2	ABC	2
3	SEVEN Net.	7

D In cases where the channel number your recorder receives (A) and the GUIDE PROG. number (C) for that station do not match, it is necessary to make changes in the remote control's Channel Map. (continued on next page)



INPUT GUIDE PROG. NUMBERS INTO REMOTE

1. **Press CH MAP until the Channel Map display (below) appears in the remote control's LCD.**



2. **Press the appropriate numeric keys to enter the GUIDE PROG. number (C column in your list).**
Ex.: For "7", press 0, 0, 7.
For "10", press 0, 1, 0.

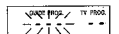
3. **Press the appropriate numeric keys to enter the channel number your recorder receives that station on. (TV PROG. number, A column in your list.)**
Ex.: For "3", press 0, 3.

4. **Press SELECT.**
- To input other channels into the Channel Map, repeat steps 2 – 4 above.

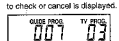
5. **Press CH MAP and display the clock time.**

TO CHECK/CANCEL GUIDE PROG. NUMBERS IN THE REMOTE

1. Press CH MAP until the Channel Map display (below) appears in the remote control's LCD.



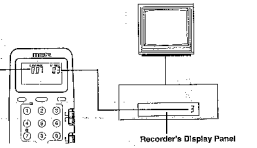
2. Press SELECT until the GUIDE PROG. number you wish to check or cancel is displayed.



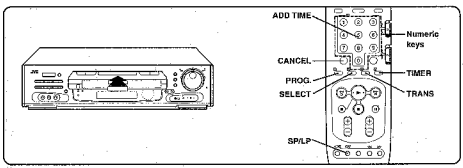
To Cancel:
3. Press CANCEL.
4. Press CH MAP and display the clock time.

NOTES:
- When you move to another area, be sure to make changes in the Channel Map as necessary.
- When the remote control's batteries are replaced, the time or Guide Channel numbers you have set may be erased. If this happens, reset them again.

Ex.: From column C in the list: The GUIDE PROG. number for SEVEN Network is "7".
From column A in the list: The TV PROG. number for SEVEN Network is "3".



Timer-Recording — G-Code Timer Programming —



The built-in G-Code programming system greatly simplifies timer programming because you won't have to enter all the data that is usually necessary (such as date, start and stop time, and channel).

TIMER PROGRAMMING IS NOT POSSIBLE UNLESS THE CLOCK HAS BEEN SET.

Preparation

- Make sure you have set the GUIDE PROG. numbers (☞ p. 14 – 15).
- Insert a cassette with the safety tab in place. The recorder power will come on automatically.

1. **Press PROG.**

2. **Press the appropriate numeric keys to enter the G-Code number for the TV programme you wish to record.**
   - For G-Code numbers, refer to your newspaper or TV directory.

3. **Press SELECT.**
   - The LCD will show the data for the G-Code number you just entered.
   - If the entered G-Code number is not proper, "Err" appears on the LCD. Check the G-Code number again and re-enter it.

WEEKLY program: After step 3, press numeric key "9".
DAILY (Mon. – Fri.) program: After step 3, press numeric key "8".

4. **Press SP/LP to select the tape speed.**
5. **Press TRANS with the remote control directed toward the recorder's Remote Sensor window.**
6. **Press PROG.**
   - The LCD returns to the clock display and the entered data will be automatically cleared.
   - If you need to set another program, repeat steps 1 – 6.
7. **Press TIMER.**
   - The recorder will enter the Timer mode and power will go off.

TO DELAY THE STOP TIME

After you press SELECT in step 3, press the ADD TIME button. Each time the ADD TIME button is pressed, the Stop time is delayed by 5 minutes (5 minutes of recording time is added). You can easily compensate for anticipated programme schedule delays this way.

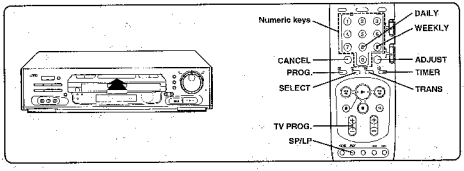
TO MAKE CORRECTIONS

- In step 2, press CANCEL to backspace and re-enter the correct G-Code number.
- After checking the data in step 3, press PROG. twice and re-enter the correct G-Code number.
- After checking the data in step 3, if you want to delay the stop time, etc. press SELECT to make the item you want to change blink, and input new data.
- Pressing PROG. clears the programmed data.

To check, cancel and replace programs, ☞ p. 17.

To use the recorder after setting to the Timer mode, ☞ p. 17.

— LCD Timer Programming —



The LCD timer programming lets you input all necessary settings manually. It's helpful if the G-Code number for the TV programme you want isn't readily available.

Preparation

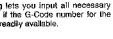
- Insert a cassette with the safety tab in place. The recorder power will come on automatically.

1. **Press PROG. twice.**
2. **Press numeric keys to input the date.**

   Ex.: For 26th May, press 2605.

3. **Press numeric keys to input the start time, stop time and channel.**

   Ex.: For 8:00, press 0800.



Transfer-ready mark

WEEKLY program: After you input the channel and the transfer-ready mark appears on the LCD, press numeric key "9".

DAILY (Mon. – Fri.) program: After you input the channel and the transfer-ready mark appears on the LCD, press numeric key "8".

4. **Press SP/LP to select the tape speed.**
5. **Press TRANS with the remote control directed to the recorder's Remote Sensor window.**
6. **Press PROG.**
   - The LCD returns to the clock display and the entered data will be automatically cleared.
7. **Press TIMER.**
   - The recorder will enter the Timer mode and power will go off.

TO MAKE CORRECTIONS

- During steps 2 and 3, press CANCEL to backspace and input new data.
- After setting the channel in step 3, press SELECT to make the item you want to change blink, and input new data.
- Pressing PROG. clears the programmed data.

TO CHECK, CANCEL AND REPLACE PROGRAMS

To check preset programs:

1. Press ADJUST until the program settings are displayed on the display panel.
   - Program 1 is displayed with the number blinking.
2. Press SELECT to review the program contents in succession.
3. To check another program, press ADJUST again.

To cancel the program:

4. Press CANCEL.
   - You can press CANCEL at any stage while the program is open.

To replace a program:

5. Use the SELECT and TV PROG. buttons to input new data.

TO USE THE RECORDER AFTER SETTING TO THE TIMER MODE

For safety, your recorder disables all other functions while in the Timer mode.

- Press TIMER to disengage the Timer mode.
- To re-engage the Timer mode, press TIMER.

Timer-Recording (cont'd)

Error Indications

The following error indications may appear on the recorder when you press the TIMER button to engage the Timer Standby mode. Here's why, and what you should do.

■ "TIMER" and "⏲" on the display panel continue blinking.
WHY: There is no cassette in the recorder.
WHAT TO DO: Insert a cassette.

■ The cassette is automatically ejected. "TIMER" and "⏲" continue blinking.
WHY: The inserted cassette has its safety tab removed.
WHAT TO DO: Insert a cassette with its safety tab intact. Or cover the safety tab hole of the cassette with adhesive tape and re-insert it. ↱ p. 13.

■ "TIMER" blinks for 10 seconds and the Timer Standby mode is cancelled.
WHY: There are no preset programs in memory, or they have all been incorrectly preset.
WHAT TO DO: Check the programmed data and re-program it as necessary. Press TIMER again.

Other Indications

■ "TIMER" steady lit (with clock display).
WHY: The recorder is in the Timer Standby mode. This is the normal display you should see when you press the TIMER button.

■ "⏲" and "TIMER" steady lit.
WHY: Normal display while timer-recording is in progress.

■ The cassette was ejected, with power off and "TIMER" and "⏲" are blinking.
WHY: This means that the end of the tape was reached while timer-recording was in progress. Therefore, the preset program may not be recorded in its entirety.

■ "0:00" blinking.
WHY: This means the clock must be set. It's displayed when time-keeping is terminated due to a power failure or because the recorder's power plug was pulled from the AC outlet.
WHAT TO DO: Set the clock. ↱ p. 7.

■ If power was interrupted, it's also likely that all preset-timer programming data has been erased. Please check and re-program as necessary.

■ "- - - - - - - -" is displayed for about 5 seconds when the TRANS button is pressed.
WHY: Data was not successfully transferred. The program may have been incorrectly preset, or the recorder's clock has not been set, or all the recorder's timer programs (1 – 8) are preset.
WHAT TO DO: Check the LCD program, and re-program as necessary. Transfer the correct data. Or cancel unnecessary programs, and transfer again.

Other Functions

Locking The Recorder's Controls

To avoid unwanted operation and prevent accidental recording...

1. Press the remote control's OPERATE button to turn the recorder's power off. Keep this button pressed for about 2 more seconds after the power LED indicator has gone off.
   ■ The Child Lock indicator (–) will appear on the display panel.
2. Child Lock is cancelled when you switch the recorder's power on with the remote's OPERATE button.
   ■ Pressing the TIMER button during timer-recording also cancels the Child Lock mode.

NOTES:
■ While Child Lock is engaged, make sure you keep your remote control in a safe place inaccessible to children.
■ Timer-recording is possible in the Child Lock mode. After timer-recording is done, Child Lock remains in effect.

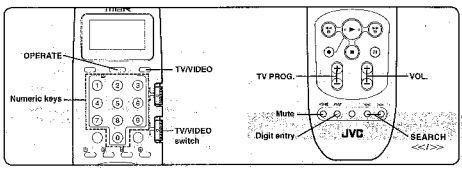
Remote A/B Code Switching

The remote control is capable of controlling two JVC video recorders independently, one set to respond to your remote control's A code control signals and another set to respond to B code control signals. The remote control is preset to send A code signals because your video recorder is initially set to respond to A code signals. You can easily modify your video recorder to respond to B code signals.

1. Unplug the recorder's power cord from the AC outlet.
2. Set the A/B code switch to B.
3. Plug the power cord back into the AC outlet. Do not use other remote controls at this stage.
4. Turn the recorder power on using the remote control's OPERATE button. The recorder will now only respond to B code signals.

NOTE:
Some TV sets may malfunction in response to the B mode. If this happens switch back to the A mode.

Using The Remote Control For TV Operation



TV Code Setting

Your remote control can operate the basic functions of your TV set. In addition to JVC televisions, other manufacturers' televisions listed on the right can also be controlled by setting the remote control to "TV". If your television is a JVC (Code-1), you don't have to set the TV code in step 2.

1. Set the TV/VIDEO switch to "TV".
2. While holding down the OPERATE button, press the numeric keys corresponding to the code number for your TV's brand.
   ■ Press OPERATE to turn the TV power on.
   ■ Press TV/VIDEO to switch the TV between TV and VIDEO (or AV) mode.
   ■ Press TV PROG. to select the TV's channel.
   ■ Press VOL. to adjust the TV's sound volume.
   ■ Press Mute to mute the TV's sound.
3. To operate your recorder, set the TV/VIDEO switch back to "VIDEO".

NOTES:
■ The TV PROG. button does not function with televisions using Code 2.
■ The TV/VIDEO button does not function with televisions using Code 3.
■ With some televisions, the OPERATE button functions only to turn the TV power off, and the TV/VIDEO button functions only to switch the TV to the VIDEO (AV) mode.
■ Whenever you replace batteries in the remote control, it is necessary to re-set the TV code if your television is not a JVC TV.

IMPORTANT
Although the provided remote control unit is compatible with JVC televisions, as well as many TV models manufactured by others, it is possible that the provided remote control will not work with your TV, or in some instances, will have limited function capability.

CODE	TV BRAND NAME
1	JVC
2	BRANDT, NORDMENDE, SABA, TELEAVIA, TELEFUNKEN, THOMSON
3	FERGUSON
4	PHILIPS
5	BLAUPUNKT, GRUNDIG
6	SONY
7	PANASONIC
0	GRAETZ, ITT, LUXOR, SALORA, SELECO

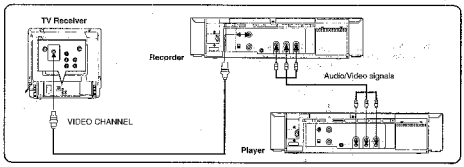
To Control Your Television With Additional Buttons

The numeric keys can also be used to select the TV's channel by setting the remote control to the TV mode.

1. Set the TV/VIDEO switch to "TV".
2. Use the numeric keys and the Digit entry button or the SEARCH ≪/≫ buttons to select the TV's channel.
   ■ With televisions using Code 1, 3, 4, 6 or 7 the Digit entry button corresponds to the 1-digit/2-digit entry switching button (often labelled -/--) of your TV's remote control.
   ■ With televisions using Code 1, 5 or 0, the SEARCH ≪ button corresponds to the 10 + button, and the SEARCH ≫ button, to the 20 + button of your TV's remote control.

NOTE:
■ The way these buttons are used is determined by your TV. Use these buttons as instructed for your TV's remote control.

Editing

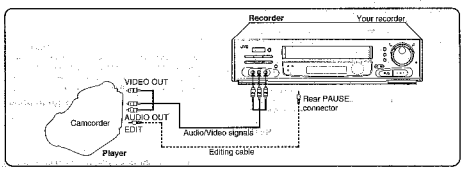


Editing To/From Another Recorder

Preparation

- Connect the player's AUDIO and VIDEO OUT connectors to the recorder's AUDIO and VIDEO IN connectors.
- Use the L connector for monaural connection.

	Player	Recorder
1	Load the source tape.	Load the recording tape.
2		Select the external input mode. **With this video recorder,** Press the numeric key "0". "-AU" will appear instead of a channel number.
3		Press and hold down the Pause button while you press the Record button to enter the Record-Pause mode.
4	Play back the source tape to search for a scene to be edited.	
5		Start recording where you want to start editing, with this recorder, by pressing the Play button.
6		To stop editing temporarily, press the Pause button.
	Repeat steps 4 through 6 to continue editing.	
7	To stop editing, press the Stop button.	



Editing From A Camcorder

Preparation

- Connect the camcorder's A/V output connectors to the recorder's front panel V (Video) and A (Audio) connectors.
- Use the L connector for monaural connection.

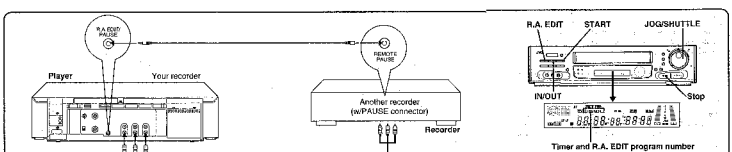
	Camcorder	Recorder
1	Load the source tape.	Load the recording tape.
2		Select the external input mode: ■ Press the numeric key "0". "F-AU" will appear instead of a channel number.
3		Press and hold down the Pause button while you press the Record button to enter the Record-Pause mode.
4	Play back the source tape to search for a scene to be edited.	
5		Press the Play button where you want to start editing.
6		To stop editing temporarily, press the Pause button.
	Repeat steps 4 through 6 to continue editing.	
7	To stop editing, press the Stop button.	

NOTES:

- If the camcorder is equipped with the Master Edit Control system, you can control the recorder using the camcorder's controls. See the camcorder's instruction manual for operating procedures.
- Connections made to the front panel Video and Audio input automatically override the rear panel AUDIO/VIDEO input connection.

To Watch A Compact VHS Tape

Compact VHS camcorder recordings (PAL) can be played on your video recorder. Place the recorded cassette into a C-P6 Cassette Adapter and it can be used like any full-sized VHS cassette.



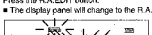
PREPARATION

This function makes it easier to create edited videos when your recorder is used as the source player in combination with another video deck which is equipped with a PAUSE (i.e. REMOTE/ PAUSE) terminal. You can pre-program up to 8 scenes or "cuts" for automatic editing in the sequence you have specified.

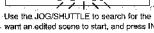
1. Connect your recorder's AUDIO and VIDEO OUT connectors to the recording deck's AUDIO and VIDEO IN connectors.
   - Use the L connector for monaural connection.
2. Connect your recorder's R.A.EDIT connector to the recording deck's PAUSE connector.
   - If the recording deck does not have a PAUSE connector, connect to the R.A.EDIT connector.
3. Turn both units on.
4. Engage the recorder's AUX (Baby) mode.

OPERATION

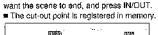
1. Insert a recorded cassette into your recorder, and insert a cassette (with safety tab intact) into the recording deck.
2. Play back the tape in your recorder.
3. Press the R.A.EDIT button.
   - The display panel will change to the R.A.EDIT mode.



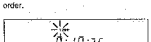
4. Use the JOG/SHUTTLE to search for the point where you want an edited scene to start, and press IN/OUT.
   - The cut-in point is registered in memory.



5. Use the JOG/SHUTTLE to search for the point where you want the scene to end, and press IN/OUT.
   - The cut-out point is registered in memory.



6. Specify additional scenes by repeating steps 4 – 5.
7. Put the recording deck in the Record-Pause mode.
8. Press START.
   - The function begins automatic editing; all the specified scenes are copied to the recording deck in sequential order.



   - While a scene is being searched, the recording deck automatically enters the Record-Pause mode.
   - When Random Assemble Editing is finished, your recorder enters the Still mode, the recording deck enters the Record-Pause mode, and the cursor blinks at the next available scene number.
9. Press R.A.EDIT again.
10. Press Stop on both decks to end Random Assemble Editing.

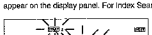
To check, cancel and replace programs, ☞ p. 24.

Sound Shuttle

You can also monitor the sound when searching for scenes you want to edit in steps 4 – 5.
Since you can hear the soundtrack during selection, you can avoid abrupt or unnatural sounding scene-to-scene connections.

Using Index Search With Random Assemble Editing

In step 4, Index Search can also be used to locate your edit points. When used, "INDEX" and the index number will appear on the display panel. For Index Search ☞ p. 10.



- Using Index Search during R.A.Edit will result in a reduction in accuracy.

Memory Capacity

Random Assemble Editing utilizes the same memory space as the recorder's timer; so the number of sequences available to this function may not be 8, depending on how many programs are already stored in memory.
Example: When three programs are stored in memory (timer program number 1, 3 and 4).

	Program number on display panel							
Timer program	1		3	4				
R.A.EDIT program		2			5	6	7	8

Only 5 programs can be programmed for R.A.EDIT. The program numbers 2, 5, 6, 7, 8 are available and R.A.EDIT will be performed in this order.

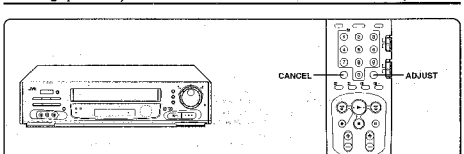
- If the display panel shows "- - - - - -" when you press R.A.EDIT, the memory is already full of timer programs. If this happens, cancel some of the timer programs. (☞ p.17.)

NOTES:

- When editing, there may be a discrepancy of about 2 seconds on the playback tape between the locations you chose as cut-in/out points and the locations the recorder recognizes as those points.
- For any scene, the cut-out point must have a counter reading that is at least 1 second after the cut-in point. A cut-out point with a counter reading less than or the same as the cut-in point will not be registered.
- Since the playback deck prerolls during Random Assemble Editing, there must be at least 15 seconds worth of recorded material prior to any cut-in point on the playback tape.
- If the search time for a cut-in point exceeds 5 minutes, the recording deck's Record-Pause mode will be cancelled and editing will not take place.

Editing (cont'd)

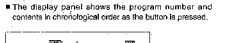
— Random Assemble Editing —



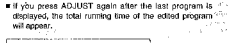
TO CHECK PROGRAMS

While in the R.A.EDIT mode:

1. Press ADJUST.
   - The display panel shows the program number and contents in chronological order as the button is pressed.



   - If you press ADJUST again after the last program is displayed, the total running time of the edited program will appear.



   - You can also check the current total running time during programming.

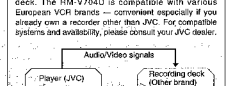
TO CANCEL AND REPLACE PROGRAMS

During steps 4 and 5 (☞ p. 22) or when checking programs:

1. Press CANCEL.
   - The displayed program will be cleared.
   - To cancel another program, press ADJUST until the program you want to cancel appears on the display panel, and then press CANCEL.
   - To replace a program, perform steps 4 and 5.

Optional RM-V704U Multi-Brand R.A.Edit Remote Control

By connecting this remote control to your recorder's R.A.EDIT Connector, Random Assemble Editing will become possible in conjunction with a second non-JVC deck. The RM-V704U is compatible with various European VCR brands — convenient especially if you already own a recorder other than JVC. For compatible systems and availability, please consult your JVC dealer.



NOTE:

- Although the RM-V704U is designed to operate the recording deck, it may not work with some VCRs, or may have limited function capability.

Precautions

Please follow these safety precautions. Not doing so may result in damage to the recorder, remote control, or video cassette.

- **Avoid extreme heat and direct sunlight.**
- **Avoid extreme cold.**
- **Avoid extreme humidity.**
- **Avoid dust.**
- **Avoid places subject to vibrations.**
- **Avoid strong magnetic fields.**
- **Do not block the recorder's ventilation openings.**
- **Do not place anything heavy on the recorder or remote control.**
- **Do not place anything which might spill on top of the recorder or remote control.**
- **Do not place the recorder on cushions, pillows, or thick carpeting.**
- **Use the recorder in a stable, horizontal position only.**

Beware of moisture condensation

Moisture in the air will condense on the recorder when you move it from a cold place to a warm place, or under extremely humid conditions — just as water droplets form on the surface of a glass filled with cold liquid. Moisture condensation on the head drum will pause damage to the tape. In conditions where condensation may occur, keep the recorder's power turned on for a few hours to let the moisture dry.

When transporting

- Be sure to remove cassette from recorder before packing.
- Avoid violent shocks to the recorder during packing and transport.

Place cassettes in cassette cases and store vertically.

Special Note On Video Cassettes

To prevent accidental recording on a recorded cassette, remove its safety tab. To record on it later, cover the hole with adhesive tape.

Specifications

GENERAL

Power requirement	:	AC 220 – 240 V, 50/60 Hz
Power consumption	:	24 W
Temperature		
Operating	:	5°C to 40°C
Storage	:	–20°C to 60°C
Dimensions (WxHxD)	:	400 x 94 x 348 mm
Weight	:	4.8 kg
Format	:	VHS PAL standard
Maximum recording time		
(SP)	:	240 min. with E-240 video cassette
(LP)	:	480 min. with E-240 video cassette

VIDEO/AUDIO

Signal system	:	PAL-type colour signal and CCIR monochrome signal, 625 lines/50 fields
Recording system	:	Rotary two-head helical scan system with slant double-azimuth combination video heads
Signal-to-noise ratio	:	43 dB (Rohde & Schwarz noise meter)
Horizontal resolution	:	250 lines
Frequency range	:	70 Hz to 10,000 Hz
Input/Output	:	RCA connectors (VIDEO IN x 2, AUDIO IN x 2 VIDEO OUT x 1, AUDIO OUT x 1)

TUNER/TIMER

TV channel storage capacity	:	80 positions (+AUX position "AU")
Channel coverage		
VHF 44 – 108 MHz	:	CH 0 – 5
137 – 230 MHz	:	CH 5A – 12
UHF 470 – 862 MHz	:	CH 28 – 69
Aerial output	:	UHF channel 36 (Adjustable 33 – 41)
Memory backup time	:	Approx. 3 min.

ACCESSORIES

Provided accessories	:	Aerial cable, Infrared remote control unit, "R6" battery x 2, Video cable, Audio cable, AC power cord

Specifications shown are for SP mode unless otherwise specified

Design and specifications subject to change without notice.

In Case Of Difficulty

POWER AND TAPE TRANSPORT PROBLEMS

Symptoms	Check points
No power is applied to the recorder.	■ Is the power cord disconnected? — Connect it.
Clock is functioning properly, but the recorder cannot be powered.	■ Is "TIMER" displayed on the display panel? — Press the TIMER button to extinguish the display.
Tape stops during rewind or fast-forward.	■ Is the C. MEMORY button pressed? — Press again to make "M" disappear from the display panel.

RECORDING PROBLEMS

Symptoms	Check points
Recording cannot be started.	■ Is a cassette loaded? ■ Is the safety tab on the cassette removed? — Reseal the slot with adhesive tape.
TV broadcasts cannot be recorded.	■ Has "external input" been selected? — Set to the desired channel.
Tape-to-tape editing or camera recording is not possible.	■ Is the camcorder or another video recorder correctly connected? ■ Are all necessary power switches turned ON? ■ Has "external input" been selected? — Set to the correct input mode. (☞ p. 20, 21)
Timer recording is not possible.	■ Have you set the clock correctly and programmed the timer correctly? — Check once again. ■ Is "TIMER" displayed on the display panel? — If not, press the TIMER button to display "TIMER".
G-Code timer recording is not possible, or cannot be done correctly.	■ Have you set GUIDE PROG. numbers into the remote control correctly? (☞ p. 14, 15) ■ Did you enter the correct G-Code number for that programme? (☞ p. 16)

PLAYBACK PROBLEMS

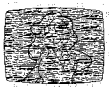
Symptoms	Check points
Playback picture does not appear while the tape is running.	■ If you are using RF OUT connection, is the TV receiver's channel selector set to the correct video channel? — Set it to the RF converter channel (UHF 36). (☞ p. 6) ■ If you are using AV connection, is the TV receiver set to the AV mode? — Set it to the AV mode.
Noise appears during visual search.	■ This is normal.
Noise appears during normal or slow-motion playback.	■ Is the automatic tracking mode engaged? — Try manual tracking. (☞ p. 10)
Playback picture is blurred or interrupted while TV broadcasts are clear.	■ Video heads may be dirty. — Head cleaning is necessary. Consult your JVC dealer. (☞ p. 27)
Breaks are noticeable in Hi-Fi audio reproduction.	■ Is the automatic tracking mode engaged? — Try manual tracking (☞ p. 10)

OTHERS

Symptoms	Check points
Whistling or howling is heard from TV during camera recording.	■ Move camcorder or camera's microphone away from TV or reduce TV sound volume.
Channel cannot be switched.	■ Is recording in progress? — Press the Pause/Slow button, change the channel, and press the Play button.
Remote control does not function.	■ Are the batteries discharged? — Replace with new ones. ■ Is the A/B code switch set to the appropriate position? ■ Is the TV/VIDEO code switch set to the appropriate position? — Check once again.

ATTENTION:
This recorder contains microcomputers. External electronic noise or interference could cause malfunctioning. In such cases, switch the power off and unplug the power cord. Then plug it in again and switch on. Take out the cassette. After checking the cassette, operate the unit as usual.

About head cleaning



■ If the picture playback becomes blurred, it does not mean that the recorded program has been erased.
■ Dirt accumulated on the video heads after long periods of use causes such troubles. In this case, head cleaning requiring highly technical care is necessary.
■ For head cleaning, consult the nearest JVC dealer.

SECTION 1
DISASSEMBLY

1.1 DISASSEMBLY

1.1.1 Top cover

1. Take out 4 screws Ⓐ and a screw Ⓑ.
2. To remove the top cover,slide in direction of arrow and lift away.

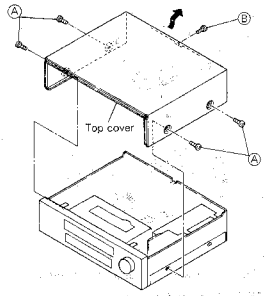


Fig. 1-1-1 Top cover

1.1.2 Front panel assembly

1. Remove the top cover.
2. Take out 2 screws Ⓓ.
3. Carefully disengage 2 tabs Ⓑ of the Front panel assembly from the upper side of the chassis.
4. Pull the front panel assembly toward you to disengage 3 tabs Ⓑ of the front panel assembly from the bottom of the chassis then disconnect a connector Ⓒ.
5. Remove the front panel assembly.

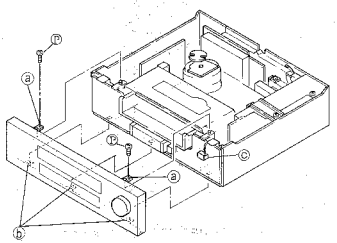


Fig.1-1-2 Front panel assembly

1.1.3 Bottom cover

1. Remove the top cover.
2. Disengage 9 claws ⓐ from the bottom of the chassis.
3. Disengage the bottom cover from the bottom of the chassis.

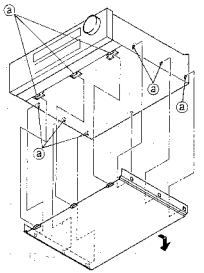


Fig.1-1-3 Bottom cover

1.1.4 FRONT board assembly

1. Remove the top cover and front panel.
2. Disengage 5 claws ⓐ from the chassis.
3. Disengage 5 claws ⓑ,then remove the FRONT board assemby in direction of arrow.

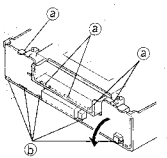


Fig.1-1-4 Front board assembly

1.1.5 SWITCHING REGULATOR board assembly

1. Remove the top cover.
2. Take out 3 screws Ⓒ and a screw Ⓓ, then remove the bracket.
3. Take out a screw Ⓔ.
4. Disengage 2 tabs ⓐ as shown in Fig.1-1-6 and remove the SWITCHING REGULATOR board assembly.

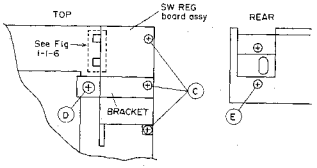


Fig.1-1-5 SWITCHING REGULATOR board assembly-(1)

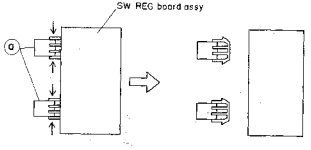


Fig.1-1-6 SWITCHING REGULATOR board assembly-(2)

1.1.6 Cassette housing assembly

1. Remove the top cover and front panel.
2. Take out 4 screws Ⓕ and 2 screws Ⓖ.
3. Disengage 2 claws ⓐ from the holder.
4. Remove the cassette housing assembly in direction of arrow.

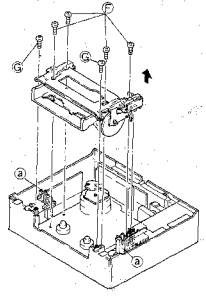


Fig.1-1-7 Cassette housing assembly

1.1.7 PRE/REC board assembly

1. Remove the top cover.
2. Take out 2 screws Ⓗ.
3. Disconnect connector CN502 from the PRE/REC board assembly
4. Remove the PRE/REC board assembly with the shield in the direction of arrow.

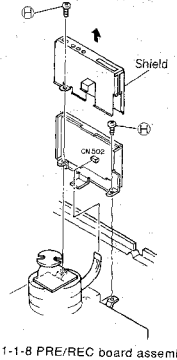


Fig.1-1-8 PRE/REC board assembly

1.1.8 Drum assembly

1. Remove the top cover.
2. Disconnect a connector of stator assembly.
3. Take out 3 screws Ⓙ, then remove the drum assembly.

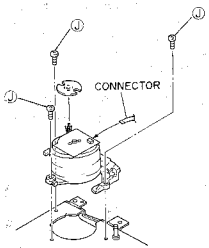


Fig.1-1-9 Drum assembly

1.1.9 Main deck assembly

1. Remove the top cover, front panel, and cassette housing assembly.
2. Take out a screw Ⓚ and disconnect 3 connectors ⓐ from the chassis.
3. Remove the main deck assembly in direction of arrow.

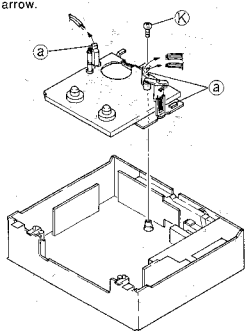


Fig.1-1-10 Main deck assembly

1.1.10 MAIN board assembly

1. Remove the top cover, front panel, SWITCHING REGULATOR, cassette housing and main deck.
2. Take out 1 screws Ⓛ and disengage 2 claws ⓐ from the chassis.
3. Remove the MAIN board assembly in direction of arrow.

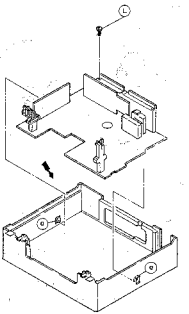


Fig.1-1-11 MAIN board assembly

1.1.11 Cassette housing installation

Note: ***Observe the mechanical phase and position (see figure)when installing the cassette housing assembly. If these are incorrect, the system will not operate properly even when tape is inserted.***

1. Check that the marks of the control cam and pinch roller cam are aligned. If necessary, turn the worm clutch by hand to adjust the position.

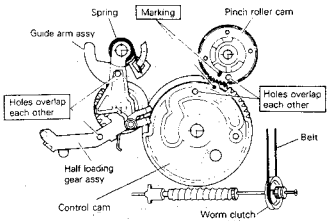
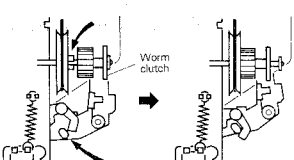


Fig. 1-1-12 Control cam and pinch roller cam position

2. Confirm that the clutch of the worm clutch assembly is locked. If necessary, engage the locked.



Flg.1-1-13(a) Not locked Fig.1-1-13(b) Lock engaged

3. Install the front panel as shown in Fig. 1-1-12 and re-engage the tabs. Supply power and use spare cassette to check for normal loading and eject operations.

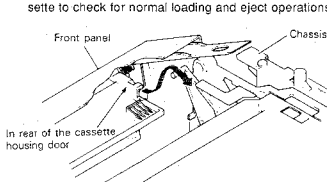


Fig.1-1-14 Cassette housing door

1.2 SERVICE POSITION -1

1. Remove the top cover, front panel and FRONT board assembly.
2. Take out 4 screws Ⓐ and a screw Ⓑ then remove the bracket.
3. Take out 2 screws Ⓒ , a screw Ⓓ and a screw Ⓔ.
4. Disengage 2 claws ⓐ from the chassis.
5. Remove the mechanism assembly(including cassette housing),MAIN board assembly and SWITCHING REGULATOR board assembly out of the chassis as shown in Fig.1-2-2.
6. Turn over the mechanism assembly and MAIN board assembly.
7. Connect the flat wire(CN1) of the FRONT board assembly to the MAIN board assembly.
8. Carry out checks & repairs as necessary as shown in.Fig.1-2-3.

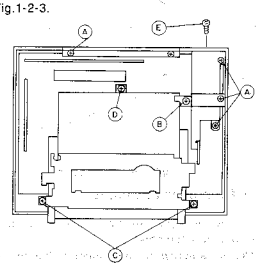


Fig.1-2-1

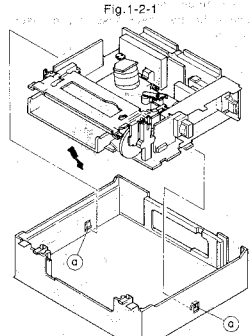
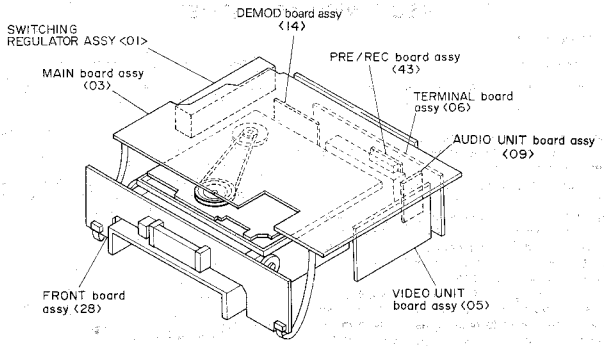


Fig1-2-2



1.3 SERVICE POSITION -2

1.3.1 Connections for MAIN board and SWITCHING REGULATOR board assembly

1. After removing the SWITCHING REGULATOR board assembly from the chassis,connect the patch cord for check and repair as follows.

NO.	CONNECTION				DISCRIPTION	CABLE PART NO.
①	SW.REG board	CN1	——	MAIN board CN801	Pin 11	PEMCJ0978-111

Table 1-3-1 Patch cord list

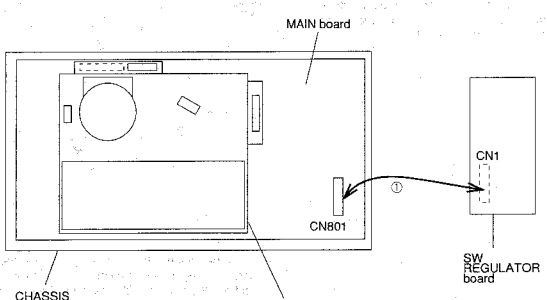


Fig. 1-3-1 Connections for patch cord

SECTION 2
MECHANISM ADJUSTMENT

2.1 PREPARATION

2.1.1 Precautions

1) Disconnect VCR from AC power before soldering.
2) Avoid imparting stress to wires when disengaging connectors.
3) Determine and correct the cause of difficulty before proceeding to adjustments. Do not disturb settings unnecessarily.
4) Use care not to damage tabs, claws, etc. during repairs.
5) Install the cassette housing assembly only when the mechanism is in the Eject or Stop mode position. In the Eject mode, the internal holder of the housing is fully raised. This is fully lowered in the Stop mode.
6) When installing the front panel assembly, be sure to engage the housing door with the door lever of the cassette housing assembly. If this is omitted, the door will not open at Eject and the cassette cannot be removed.
See Sec.1 DISASSEMBLY.

2.1.2 Check without cassette housing

Mechanism operations can be observed easily by removing the cassette housing assembly. Note the following.

1) Disable the photo transistor sensor (END SENSOR) on the main-deck by applying an opaque cover.
2) Connect pins 2 and 3 of Main board connector CN601.
3) Select the desired modes with the operation buttons. However, notice that without tape, setting for the reverse direction modes produces the Stop mode after a few seconds due to absence of the reel sensor output.

2.1.3 Manual removal of loaded tape

In event of failure which leaves the tape in the loaded position, remove it by the following procedure.

1) Take off the top cover and main deck assy in order to wind the tape on the reel.
See Sec.1 DISASSEMBLY.
2) Turn the mode motor belt by hand in the unloading direction to return the loading posts to the stop position, refer Fig. 2-1-1.

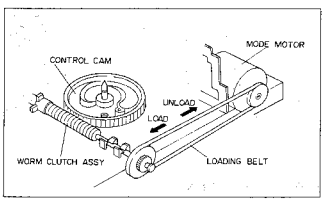


Fig. 2-1-1

3) From the bottom, turn the clutch unit by hand to wind the slackened tape onto the reel.

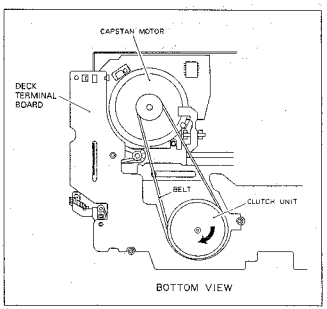


Fig. 2-1-2

4) Turn the mode motor further to where the cassette holder begins moving in the unloading direction, then remove the cassette tape.

Note: *Turn the mode motor and clutch unit alternately in order to avoid damaging the tape. It is important to avoid scratching the tape in the mechanism.*

2.1.4 Test equipment

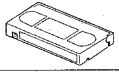
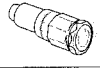
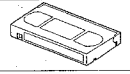
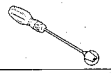
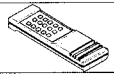
Alignment tape (SP) MH-2	Alignment tape (LP) MH-2L	Torque gauge PUJ48075-2	Back tension cassette gauge PUJ48078-2
			
A/C head positioning tool PTU94010	**Roller driver PTU94002**	**Presetting unit PTU94008**	
			

Table 2-1-1

2.2 MAIN MECHANISM PARTS

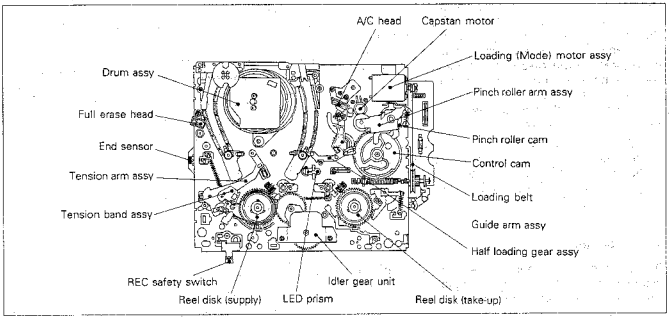


Fig. 2-2-1 Top view of main-deck

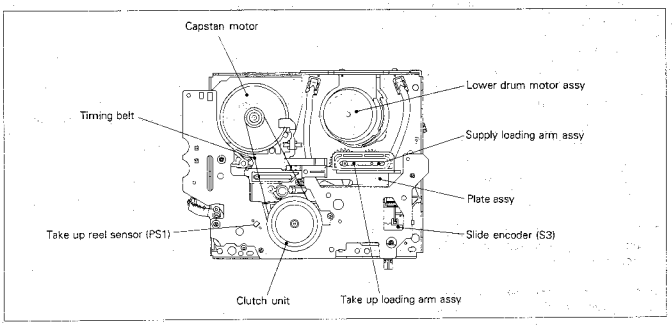


Fig. 2-2-2 Bottom view of main-deck

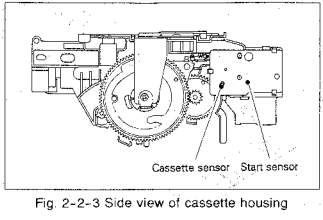


Fig. 2-2-3 Side view of cassette housing

2.2.1 Cleaning

Periodic cleaning of the tape transport system is desirable, but ordinarily not feasible in practice. Therefore, perform cleaning when a set is brought in for repairs or maintenance. Contamination of the video heads, tape guides and brushes can detract from playback picture quality and in extreme cases, even damage the tape. For cleaning, use a fine-mesh cotton cloth (about the texture of a white dress-shirt) moistened in alcohol.

- To clean the video heads, press the moistened cloth gently against the upper drum with finger-tip and turn the drum by hand.
- Do not use a vertical stroke, as this may damage the heads.

2.2.2 Lubrication

Oil and grease do not normally require periodic replenishing. Apply only when replacing lubricated parts (also clean and replace lubrication of mating parts if soiled).
For parts and points to apply oil and grease, refer to the exploded views of the mechanism assembly.
Before oiling, clean with alcohol.
Apply one or two drops of oil.
Avoid excess oil.

1) Table 2-2-1 indicates the oil and grease used in this set. Use these or recommended locally available equivalents.

Category	Part No.
Oil	COSMO-HV56
Grease	KANTO-G-31KAV

Table 2-2-1

2) Grease is not required for a replacement cassette housing assembly, as this has been applied at the factory.

Note: *Stir grease that has been stored for an extended period.*

2.3 INSPECTION AND MAINTENANCE

This product employs rotary and moving parts which wear out in the course of usage. Periodic inspection, cleaning, lubrication and maintenance are therefore important for ensuring maximum performance. Worn parts must also be replaced as and when required.

2.3.1 Suggested servicing schedule for main components

The following table indicates the suggested period for such service measures as cleaning, lubrication and replacement. In practice, the indicated periods will vary widely according to environmental and usage conditions. However, the indicated components should be inspected when a set is brought for service and the maintenance work performed if necessary.
Also note that rubber parts may deform in time, even if the set is not used.

System	Parts Name	Operation hours						
		250	500	750	1000	1250	1500	2000
Tape Transport	Upper drum assy	★	★	★	○	★	○	○
	A/C head	★			○			○
	Pinch roller arm assy	★	★	★	★	★	★	★
	Full erase head							
	Tension arm assy							
	Lower drum assy							
	Capstan motor (Shaft)							
	Half loading gear assy							
	Guide arm assy							
Drive	Capstan motor							○
	Loading belt			○				○
	Mode motor assy			○				○
	Reel disk (Supply)			○				○
	Reel disk (Take-up)			○				○
	Clutch assy			○				○
	Worm clutch assy							○
	Plate assy							○
Others	Brush assy			○				○
	Tension band assy			○				○

★ : Cleaning
○ : Inspection or Replacement if necessary

Table 2-3-1

2.4 MAIN PARTS REPLACEMENT AND ADJUSTMENT

2.4.1 Stator assembly

1) Take out 2 screws (A).
2) Raise the Stator Assembly in the direction indicated by the arrow to remove it (also remove the Inertia Roller).
3) Remove the flat cable.
4) To reinstall, first secure the flat cable, then insert 2 screws (A).
5) After reinstalling, be sure to perform switching point adjustment.

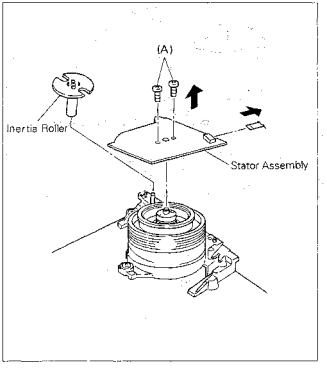


Fig. 2-4-1

2.4.2 Rotor assembly

1) Remove the Stator Assembly.
2) Take out 2 screws (B) and remove the Rotor Assembly.

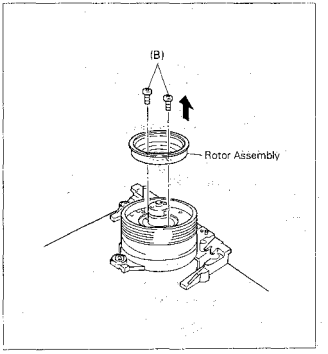


Fig. 2-4-2

Note: *A normal picture will not be obtained unless the phase is properly aligned when installing the Rotor Assembly.*

3) Align the Upper Drum and Rotor Assembly phase as indicated in Fig. 2-4-3.
4) Overlap holes (a) of the Upper Drum with holes (b) of the Rotor Assembly (align holes in 3 locations) and secure with 2 screws (B) (see Fig. 2-4-3).

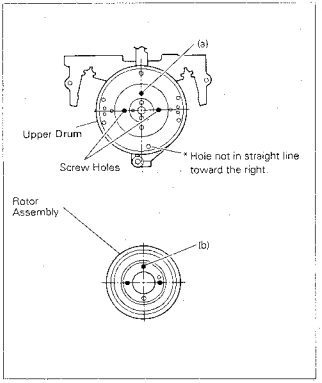


Fig. 2-4-3

2.4.3 Drum subassembly

1) Disengage the PRE/REC AMP board connector and flat cable.
2) Take out 3 screws (C) and remove the Drum Subassembly.

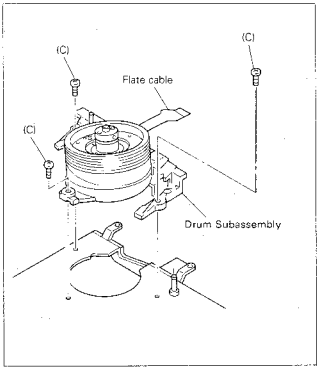


Fig. 2-4-4

2.4.4 Upper Drum assembly

1. Removal

1) Remove the Stator and Rotor Assemblies.
2) Use a 1.5 mm hexagonal wrench to loosen the Collar Assembly screw and remove the Collar Assembly.
3) Remove the Upper Drum Assembly and use tweezers to remove the Washer.

Note: ***If the Brush is replaced, do not apply the grease to the contacts.***

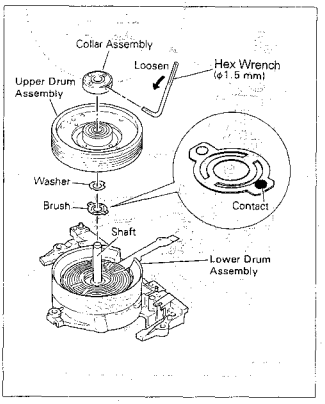


Fig. 2-4-5

2. Installation

1) Use an air brush to clean the Lower Drum Assembly and the coil section of the new Upper Drum Assembly.
2) Set a new Washer on the Drum shaft (see Fig. 2-4-6).

Note: *Be sure to use the new Washer supplied with the replacement Upper Drum Assembly.*

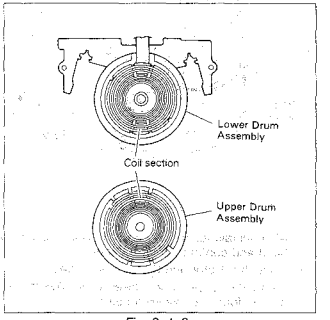


Fig. 2-4-6

3) Note the top and bottom of the Collar Assembly and determine the position as indicated in Fig. 2-4-7.

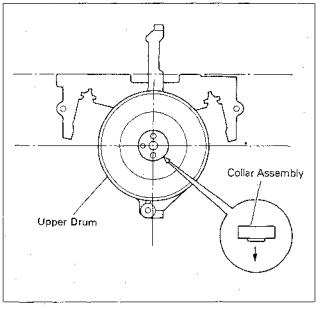


Fig. 2-4-7

4) While pressing the Collar Assembly evenly from above with the fingertips, secure the hexagonal screw.

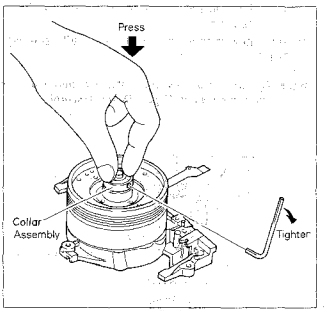


Fig. 2-4-8

5) After installing, gently turn the Upper Drum by hand and confirm normal rotation.
6) Install the Rotor and Stator Assemblies.
7) Clean the Upper and Lower Drum Assemblies and perform the following adjustments:

- Switching Point Adjustment
- Interchangeability Adjustment (be sure to check LP mode)
- Recording colour level Adjustment

2.4.5 Tension arm positioning

1) Remove the cassette housing, set the playback mode.
(Refer to 2.1.2 Check without cassette housing)
2) Turn the eccentric adjust pin to position the mark of the chassis with the tension arm tip as shown Fig. 2-4-9.

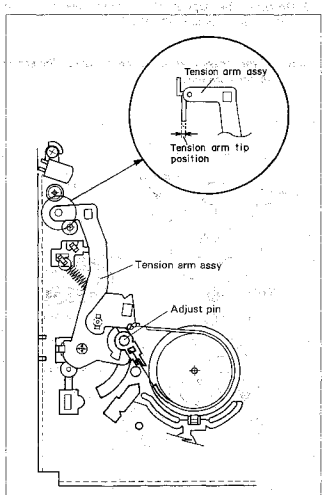


Fig. 2-4-9

Note: *Normally, if the tension post position is properly adjusted, the back tension will assume the correct value. Use the back tension cassette gauge and confirm playback tension is 35 g-cm to 48 g-cm (13.8 g-inch to 18.9 g-inch).*

2.4.6 Pinch roller cam position

1) Set the mechanism to the eject mode (cassette holder is locked in eject position).
2) Install the pinch roller cam so the largest hole near the gear teeth is aligned with the hole on the chassis.
3) Set the control cam on the deck with the hole in the groove aligned with the hole on the chassis. Observe that the small hole on the control cam and the mark on the pinch roller cam are aligned. (If the control cam does not fit readily, shift the loading arm and plate assembly within the range of mechanical play.)
4) Install the half-loading gear assembly with the hole aligned with the hole on the chassis. Secure with split washer.
5) Install the guide arm assembly with the hole aligned with hole on the chassis. Engage the spring properly.

Note: *This is the correct mechanical alignment to install the cassette housing. The cassette housing should also be in the eject position.*

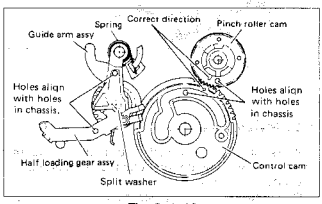


Fig. 2-4-10

2.4.7 Audio/control head height

1) Adjust the 3 screws (screw ①,②,③ in Fig. 2-5-1) to set the audio/control head height to 6.6 mm (0.26 in). Adjust all screws equally.
2) Perform interchangeability adjustments to obtain the specified control pulse and audio signal levels.

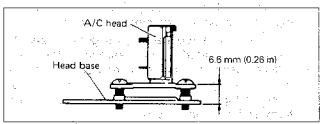


Fig. 2-4-11

Notes: · *It is very important to correctly adjust the control pulse and audio signal in addition to the mechanical tape path.*

· *Perform interchangeability adjustments after electrical adjustments.*

2.4.8 Loading arm and plate assembly position

1) Set for Eject mode and remove the deck terminal board.
2) Check that the preset hole of the plate assembly is in the preset position. Temporarily insert a 3 mm (0.12 in) screw to hold the position.
3) By hand, hold the loading arms in the unloading (inner) position and set the plate assembly from above.
4) Install Red and White split washers. Remove temporary screw.
5) Move the mode motor belt by hand and confirm mechanism operation.

Note: *Observe that the brake assembly pin is engaged with the plate assembly groove.*

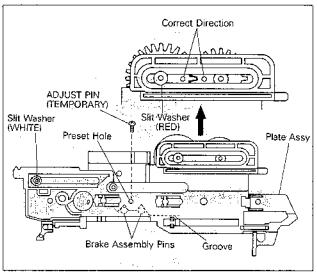


Fig. 2-4-12

2.4.9 Reel disk height

1) Measure the height of the reel disk above the main chassis.
2) Add or remove washers at the bottom of the reel disk to adjust for 12 mm (0.47 in). See Fig. 2-4-13.

Note: *This adjustment is normally not needed. Perform after replacing the reel disk.*

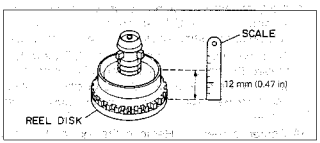


Fig. 2-4-13

2.5 TAPE INTERCHANGEABILITY ADJUSTMENT

Note: *This adjustment is extremely important. However, it is normally not required during routine service. Perform only after replacing major components (A/C head, drum assembly, etc.).*

2.5.1 Height and azimuth adjustment of A/C head

1) Connect the oscilloscope to the audio output jack on the rear of the deck.
2) Play back the stairstep portion (6 kHz, Mono) of the alignment tape.
3) Adjust Black Screw ② on the head base in Fig. 2-5-1 so that the output level is at a maximised.
4) Readjust Screw ① shown in Fig. 2-5-1 for maximum output.

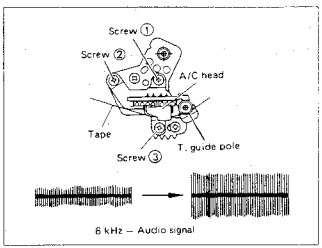


Fig. 2-5-1

2.5.2 Horizontal Position adjustment of A/C head

1) Play back the stairstep portion of the alignment tape.
2) Connect the oscilloscope to TP506 (PB FM) on the PRE/REC AMP board. Use TP511 (DRUM FF) as a trigger. Confirm that the FM envelope appears, as in Fig. 2-5-4.
3) Set the neutral manual tracking position, by simultaneously press of the (+) and (–) tracking buttons.
4) If adjustment is required, slightly loosen screws ④ and ⑤. Set A/C head positioning tool on the A/C head adjusting boss as shown in Fig. 2-5-2.
5) Turn the tool first to position the A/C head fully toward the capstan. Then gradually return it toward the drum and stop at the position of maximum FM waveform output level as shown in Fig. 2-5-4.
6) Tighten screw ⑤. Remove the tool and tighten screw ④.
7) Eject the tape and then re-insert again. Playback the Alignment Tape. Set the neutral manual tracking position. Push the tracking (+) button (count the number of pushes) until the maximum envelope is reduced to 1/2. Eject the tape and re-insert it again. Playback the Alignment Tape. Set the neutral manual tracking position. Push the tracking (–) button (count the number of pushes) until the maximum envelope is reduced to 1/2.
8) Confirm that the number of pushes are equal.

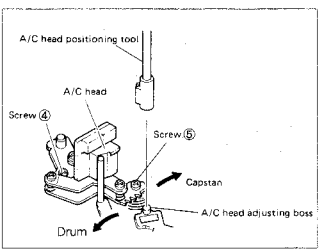


Fig. 2-5-2

2.5.3 Playback tracking

This is the most important adjustment. If incorrect, proper tracking will not be obtained in recording and playback.
Other problems that may occur are noise in parts of the picture, poor color reproduction and picture instability.

1) Play back the stairstep portion of the alignment tape.
2) Connect the oscilloscope to TP506 (PB FM) on the PRE/REC AMP board. Use TP511 (DRUM FF) as a trigger. Confirm that the envelope appears, as in Fig. 2-5-4.
3) Operate the tracking adjustment (press the tracking buttons during playback) and set for maximum playback envelope waveform.
4) If adjustment is required, first slightly loosen the set screw located at the bottom of the guide rollers. Using the guide roller adjustment tool, adjust the supply and take-up guide rollers (refer to Fig. 2-5-3) to obtain the correct waveform. Refer to Fig. 2-5-5.

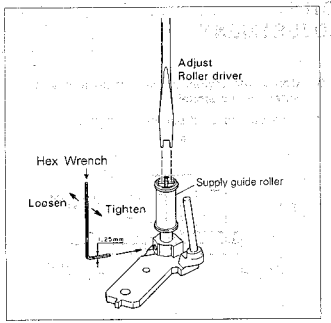


Fig. 2-5-3

5) By pushing the tracking buttons several times, vary the FM waveform output from maximum to minimum (and vice versa) gradually, and confirm that the variation proceeds in a flat shape, as in Fig. 2-5-6.

6) If the FM waveform varies and is not mostly flat, tweak the height of guide roller(s) until the FM waveform is as flat as possible.

7) Eject a tape and then playback tape again, since the height of guide rollers may move during adjustment. Confirm, when pushing the tracking (+) and (–) buttons, FM waveform variation is always flat.

8) After adjustment, confirm that the tape wrinkling does not occur at the roller upper or lower limits, as in Fig. 2-5-7.

9) Perform step 2.5.1 and 2.5.2.

10) Acceptable level difference between channel 1 and 2 is 5db. (See Fig. 2-5-8)

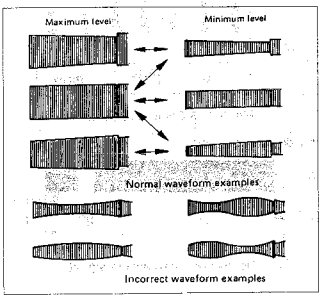


Fig. 2-5-4

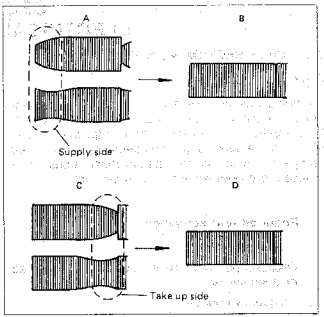


Fig. 2-5-5

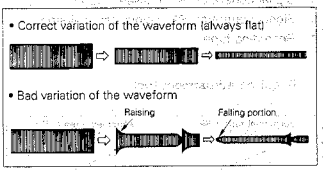


Fig. 2-5-6

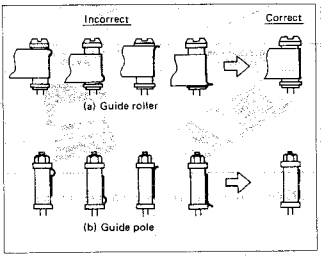


Fig. 2-5-7

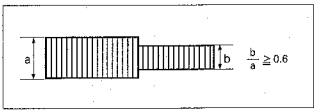


Fig. 2-5-8

SECTION 3
ELECTRICAL ADJUSTMENT

3.1 DECK SECTION ADJUSTMENT

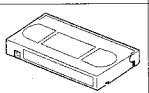
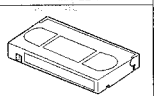
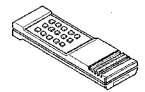
3.1.1 PRECAUTION

Electrical adjustments are required after replacing circuit components and certain mechanical parts. It is important to perform these adjustments only after all repairs and replacements have been completed. Also, do not attempt these adjustments unless the proper equipments is available.

1. Required test equipment

1. Colour television or monitor
2. Oscilloscope: wide-band, dual-trace, triggered delayed sweep
3. Frequency counter
4. Digital voltmeter
5. Signal generator: RF/IF sweep/maker
6. Signal generator: PAL colour bar, stairstep
7. Recording tape

2. Required adjustment tools

Alignment tape (SP) MH-2	Alignment tape (LP) MH-2L
	
Presetting unit PTU94008	∗SMC replacement tools YTU94036C
	

∗ **Note:** *It is convenient for replacing chip parts.*

3. Colour bar signal, colour bar pattern and video sweep signal

● Colour bar signal of pattern generator

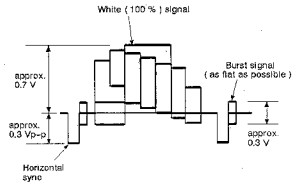


Fig. 3-1-1 Colour bar signal of pattern generator

● Colour bar signal

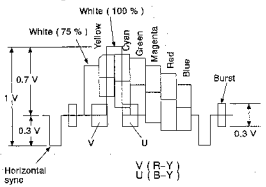


Fig. 3-1-2 Colour bar signal waveform

● Colour bar pattern

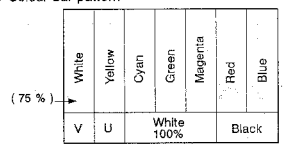


Fig. 3-1-3 Colour bar pattern

● Video sweep signal

Fig. 3-1-4 Video sweep signal

3.1.2 SWITCHING REGULATOR CIRCUIT

Note: *Unless otherwise specified, all measurement points and adjustment parts are located on the MAIN BOARD.*

1. 5V DC output voltage

Signal	•TUNER
Mode	•SP •REC
Equipment	•Digital voltmeter
Measurement point	•TP802 (SWD 5 V) •TP801 (GND)
Adjustment part	•R805 (SWD 5 V)
Specification	•5.2 ± 0.1 V DC

1) Connect a digital voltmeter to TP802 and TP801.
2) Adjust R805 for 5.2 ± 0.1 V DC.

3.1.3 SERVO CIRCUIT

Note: *Unless otherwise specified, all measurement points and adjustment parts are located on the MAIN BOARD.*

1. PB switching point

Signal	•Alignment tape (MH-2) •Stairstep
Mode	•PB •Automatic tracking OFF
Equipment	•Oscilloscope
Measurement point	•TP210 (VIDEO OUT) [TERMINAL BOARD]
Trigger slope (–)	•TP511 (DRUM FF) [PRE/REC AMP BOARD]
Adjustment tool	•Presetting unit [PTU94008]
Specification	•6.5 ± 0.5 H

Note: *Use only buttons "E" and "F". Depressing other buttons during adjustment may cause adjustment errors.*

1) Connect an oscilloscope to TP210 and external trigger from TP511 (negative slope).
2) Playback the stairstep signal of the alignment tape.
3) Set the tracking control to the centre position by simultaneously pressing the TV PROG. (+) and (–) buttons.
4) Adjust by pressing "E" (+) or "F" (–) buttons of the presetting unit for position the trigger point 6.5 ± 0.5 H from V.sync.

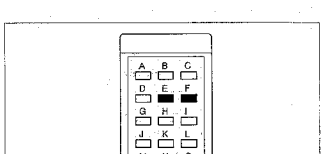


Fig. 3-1-5 Presetting unit

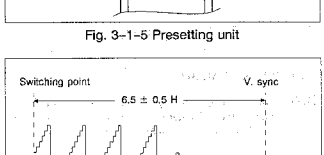


Fig. 3-1-6 PB switching point

2. Slow tracking preset

Signal	•Colour bar
Mode	•SP •REC → PB (SLOW) •Automatic tracking OFF
Equipment	•TV-Monitor
Adjustment tool	•Presetting unit [PTU94008]
Specification	•Mimimum noise

Note: *Set VCR to the mode A by remote controller.*

1) Record a colour bar signal in the SP mode.
2) Playback recorded signal on the FWD slow mode.
3) Set the tracking control to the centre position by simultaneously pressing the TV PROG. (+) and (–) buttons.
4) Observe the display on a TV monitor and adjust for optimum noise condition (best tracking) by depressing "C" (+) or "B" (–) buttons of the presetting unit as required.
5) Depress the STOP button.
6) Confirm that the bar noise is not visible on the monitor in the slow mode.

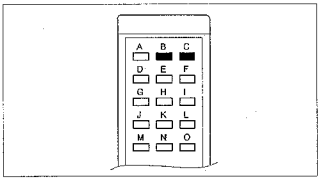


Fig. 3-1-7 Presetting unit

3.1.4 VIDEO CIRCUIT

Note: *Unless otherwise specified, all measurement points and adjustment parts are located on the VIDEO UNIT BOARD.*

Important:

Item 1. thru 6..

1) Ordinarily performing these adjustments is not required. Adjustments should be performed only if IC2 on the VIDEO UNIT BOARD has been replaced.
2) To adjust, replace fixed resistor with variable chip resistor, then adjust as required.

1. EE Y level

Signal	•Colour bar
Mode	•EE
Equipment	•Oscilloscope
Measurement point	•TP210 (VIDEO OUT) (TERMINAL BOARD)
Adjustment part	•R42 (EE Y LEVEL)
Specification	•2.00 ± 0.06 Vp-p (Unterminated)

1) Connect an oscilloscope to TP210.
2) Confirm that Y level is 2.00 ± 0.06 Vp-p. Unterminated.
3) If necessary, replace R42 with the variable chip resistor NVP1301-153N and adjust it for 2.00 ± 0.06 Vp-p, as in Fig. 3-1-8.

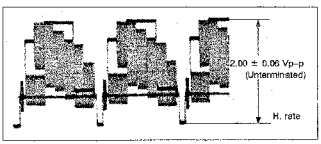


Fig. 3-1-8 EE Y level

2. White clip

Signal	•Colour bar
Mode	•EE
Equipment	•Oscilloscope
Measurement point	•IC2 pin 22
Adjustment part	•R45 (W/D CLIP)
Specification	•WHITE CLIP : 190 ± 4 % •DARK CLIP : 145 ± 8 %

1) Connect an oscilloscope to IC2 pin 22.
2) Confirm that white clip is 190 ± 4 % and dark clip is 145 ± 8 %.
3) If necessary, replace R45 with the variable chip resistor NVP1301-103N and adjust it 190 ± 4 % white clip and 145 ± 8 % dark clip, as in Fig. 3-1-9.

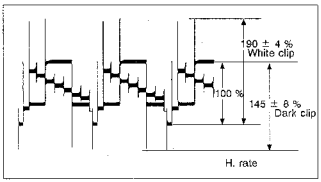


Fig. 3-1-9 White clip

3. Carrier & deviation

· Carrier

Signal	•No signal-VIDEO INPUT (Shorted RCA Phono Plug)
Mode	•EE
Equipment	•Frequency counter
Measurement point	•CN2 pin 5
Adjustment part	•R28 (CARRIER)
Specification	•3.800 ± 0.040 MHz

1) Connect the frequency counter to CN2 pin 5.
2) Confirm that frequency is 3.800 ± 0.040 MHz.
3) If necessary, replace R28 with the variable chip resistor NVP1301-223N and adjust it for 3.800 ± 0.040 MHz.

· Deviation

Signal	·Colour bar
Mode	·REC then PB
Equipment	·Oscilloscope
Measurement point	·TP210 (VIDEO OUT) (TERMINAL BOARD)
Adjustment part	·R29 (DEVIATION)
Specification	·2.00 ± 0.06 Vp-p (Unterminated)

4) Record and playback a colour bar signal.
5) Confirm that Y level is 2.00 ± 0.06 Vp-p unterminated.
6) If necessary, replace R29 with the variable chip resistor NVP1301-103N and adjust it for 2.00 ± 0.06 Vp-p, as in Fig. 3-1-10.

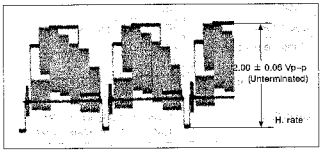


Fig. 3-1-10 Carrier & deviation

4. YNR level

Signal	·Colour bar
Mode	·EE
Equipment	·Oscilloscope
Measurement point	·IC2 pin 9
Adjustment part	·R18 (N.C. BALANCE)
Specification	·Mimimum DC step difference

1) Connect an oscilloscope to IC2 pin 9.
2) Confirm that DC step difference is minimum.
3) If necessary, replace R18 with the variable chip resistor NVP1301-152N and adjust it for minimum DC step difference, as in Fig. 3-1-11.

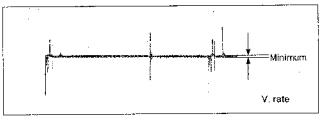


Fig. 3-1-11 YNR level

5. PB Y level

Signal	·Colour bar
Mode	·SP ·REC then PB
Equipment	·Oscilloscope
Measurement point	·TP210 (VIDEO OUT) (TERMINAL BOARD)
Adjustment part	·R25 (PB Y LEVEL)
Specification	·2.00 ± 0.06 Vp-p (Unterminated)

Note: ***Confirm that procedure 3.1.4-2. is correct before performing this adjustment procedure.***

1) Connect an oscilloscope to TP210.
2) Record and playbck a colour bar signal.
3) Confirm that Y level is 2.00 ± 0.06 Vp-p unterminated.
4) If necessary, replace R25 with the variable chip resistor NVP1301-472N and adjust it for 2.00 ± 0.06 Vp-p, as in Fig. 3-1-12.

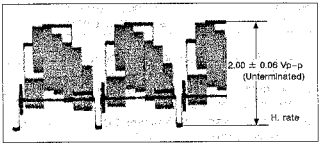


Fig. 3-1-12 PB Y level

6. REC colour level

Signal	·Colour bar
Mode	·SP ·REC
Equipment	·Oscilloscope
Measurement point	·CN2 pin 11 (REC COLOUR)
Adjustment part	·R52 (REC COLOUR LEVEL)
Specification	·200 ± 10 mVp-p

1) Connect an oscilloscope to CN2 pin 11.
2) Record the colour bar signal in SP mode.
3) Confirm that colour level is 200 ± 10 mV p-p, as in Fig. 3-1-13.
4) If necessary, replace R52 with the variable chip resistor NVP1301-222N and adjust it for 200 ± 10 mVp-p.

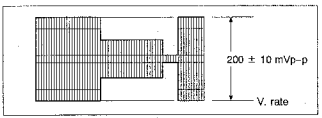


Fig. 3-1-13 REC colour level

3.1.5 TIMER CIRCUIT

Note: *Unless otherwise specified, all measurement points and adjustment parts are located on the MAIN BOARD.*

1. Timer clock

Signal	•No signal
Mode	•EE •AUX
Equipment	•Frequency counter
Measurement point	•IC601 pin 64
Adjustment part	•C614 (TIMER CLOCK)
Specification	•1024.008 ± 0.001 Hz (976.5549 ± 0.0010 µsec)

1) Connect the frequency counter to IC601 pin 64 and GND.
2) Connect the short wire between IC601 pin 33 and IC601 pin 63.
3) Short the leads of capacitor C616 once in order to reset IC601.
4) Disconnect the short wire then connect it quickly again.
5) Adjust C614 for 1024.008 ± 0.001 Hz (976.5549 ± 0.0010 µsec).
6) Disconnect the short wire.

3.1.6 AUDIO CIRCUIT

Note: *Unless otherwise specified, all measurement points and adjustment parts are located on the AUDIO UNIT BOARD.*

Important:

Item 1. and 2..

1) Ordinarily performing these adjustments is not required. Adjustments should be performed only if IC1 on the AUDIO UNIT BOARD has been replaced.
2) To adjust, replace fixed resistor with variable chip resistor, then adjust as required.

1. Carrier frequency adjustment

Signal	•No signal
Mode	•EE
Equipment	•Frequency counter
Measurement point	•IC1 pin 21 •IC1 pin 43
Adjustment part	•R11 (L CARRIER) •R25 (R CARRIER)
Specification	•1.400 ± 0.005 MHz : R11 •1.800 ± 0.005 MHz : R25

1) Connect the frequency counter to IC1 pin 21 and GND.
2) Confirm that frequency is 1.400 ± 0.005 MHz.
3) If necessary, replace R11 with the variable resistor NVP1301-153NU and adjust it for 1.400 ± 0.005 MHz.
4) Connect the frequency counter to IC1 pin 43 and GND.
5) Confirm that frequency is 1.800 ± 0.005 MHz.
6) If necessary, replace R25 with the variable resistor NVP1301-103NU and adjust it for 1.800 ± 0.005 MHz.

2. Hi-Fi playback audio level

Signal	•Audio 1 kHz (–8 dBs)
Mode	•REC → PB
Equipment	•Audio oscillator •AC millivoltmeter
Measurement point	•Audio out (L ch) •Audio out (R ch)
Adjustment part	•R5 (L DEVIATION) •R30 (R DEVIATION)
Specification	•–8 dBs (0.9 Vp-p, 0.32 Vrms)

1) Connect an audio oscillator to audio input (left channel).
2) Record and playback an audio signal.
3) Confirm that output level is –8 dBs (0.9 Vp-p, 0.32 Vrms).
4) If necessary, replace R5 with the variable resistor NVP1301-333NU and adjust it for –8 dBs (0.9 Vp-p, 0.32 Vrms).
5) Connect an audio oscillator to audio input (right channel).
6) Record and playback an audio signal.
7) Confirm that out put level is –8 dBs (0.9 Vp-p, 0.32 Vrms).
8) If necessary, replace R30 with the variable resistor NVP1301-333NU and adjust it for –8 dBs (0.9 Vp-p, 0.32 Vrms).

3.1.7 DEMODULATOR CIRCUIT

Note: *Unless otherwise specified, all measurement points and adjustment parts are located on the DEMODULATOR BOARD.*

1. Stereo separation adjustment

Signal	•Sweep generator output (96 dBμ, 1 kHz)
Mode	•EE
Equipment	•Oscilloscope
Measurement point	•JP1 pin 5
Adjustment part	•R45 (SEPARATION)
Specification	•Minimize

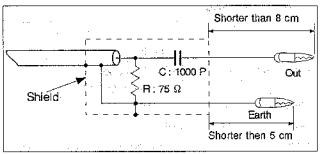


Fig. 3-1-14 Sweeper probe

1) Use a sweeper probe as shown in Fig. 3-1-14.
2) Supply 300 Hz R-only modulated IF signal to IF terminal of U/V tuner (front end).
3) Connect an oscilloscope to pin 5 of JP1.
4) Adjust R45 for minimum output level.

3.1.8 TUNER CIRCUIT

Note: *Unless otherwise specified, all measurement points and adjustment parts are located on the IF UNIT BOARD.*

1. RF AGC

Note: *Before the following adjustment,*

1) Connect a cable to ANT IN and terminate TV OUT with 75 ohms.

2) Set a TV channel signal generator as follows.

Video: 65 dBμ 75 Ω, colour bar 87.5 % modulation.

Audio: 55 dBμ 75 Ω, 1 kHz ± 50 kHz deviation.

〈**Factory Method**〉

Signal	•TV broadcasting
Mode	•Tuner
Equipment	•Oscilloscope •TV signal generator
Measurement point	•IF UNIT
Adjustment part	•IF VR
Specification	•–6.0 dB from maximum level (with minimum noise)

1) Connect an oscilloscope to IF terminal of U/V tuner (front end).
2) Adjust IF VR for maximum level, then adjust IF VR to reduce the IF level –6.0 dB from maximum level.

〈**Alternate Method**〉

Note: *Adjust IF VR (RF AGC) to correct for excess noise in the picture or when streaks cross interference occurs due to strong electrical fields.*

1) Adjust IF VR to minimize noise or streaks on the TV screen.
2) Adjust for noisy picture with strong signal. Then adjust until noise just disappears. Select other channels to confirm proper pick-up of channels.

SECTION 4
CHARTS AND DIAGRAMS

SCHEMATIC DIAGRAM NOTES

Safety precautions

The Components identified by the symbol ⚠ are critical for safety. For continued safety, replace safety critical components only with manufactures recommended parts.

1. Schematic diagram values

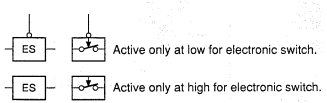
Unless otherwise specified.

1) All resistance values are in ohms. 1/6 W, 1/8 W (refer to parts list).
   Chip resistors are 1/16 W.
   K: KΩ (1000Ω), M: MΩ (1000KΩ)
2) All capacitance values are in μF, (P: PF).
3) All inductance values in μH, (m: mH).
4) All diodes are 1SS133 or MA165, (refer to parts list).

2. Indications

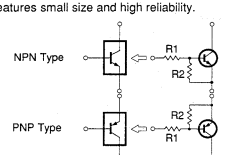
AUX : Active only at high.

$\overline{AUX}$: Active only at low.

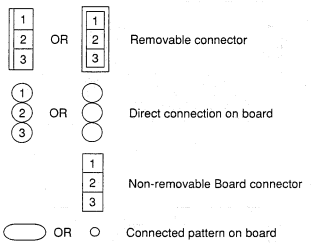


Digital transistor :

The digital transistor includes built in resistors.
It features small size and high reliability.

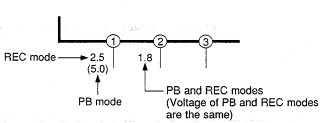


3. Interpreting Connector indications



4. Voltage measurement

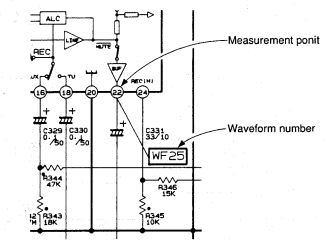
1) Video circuits
   REC: Colour bar signal in SP mode, normal VHS mode.
   PB : Alignment tape, colour bar SP mode, normal VHS mode.
   — : Unmeasurable or unnecessary to measure.
2) Audio circuits
   REC: 1KHz, –8 dBs sine wave signal in SP mode, Normal VHS mode.
   PB : REC then playback it.
3) Movie Camera circuits
   Measured using a correctly illuminated grey scale or colour bar test charts in the E-E mode.
4) Indication on schematic diagram
   Voltage Indications for REC and PB modes on the schematic diagram are as shown below.



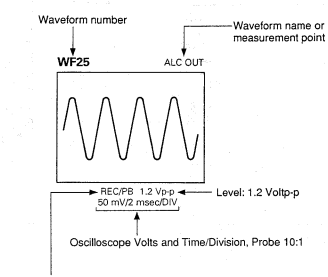
Note: If do not indicate for voltage measurement on the schematic diagram, refer to the voltage charts.

5. Waveform measurement

1) Video circuits
   REC: Colour bar signal in SP mode, normal VHS mode.
   PB : Alignment tape, colour bar SP mode, normal VHS mode.
2) Audio circuits
   REC: 1KHz, –8 dBs sine wave signal in SP mode, normal VHS mode.
   PB : REC then playback it.
3) Movie Camera circuits
   Measured using a correctly illuminated grey scale or colour bar test charts in the E-E mode.
4) Indication on schematic diagram
   Waveform indications on the schematic diagram are as shown below.

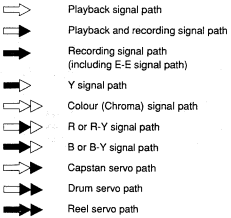


5) Waveform indications



6. Signal path Symbols

The arrows indicate the signal path as follows.



CIRCUIT BOARD NOTES

1. Colour indications

1) Foil side :
   Foil side patterns are indicated at GREY shading.
2) Component side :
   Component side patterns are indicated at RED shading.

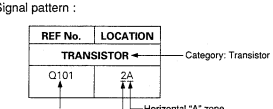
2. Foil and Component sides

1) Foil side (B side) :
   Parts on the foil side seen from foil face (pattern face) are indicated.
2) Component side (A side) :
   Parts on the component side seen from component face (parts face) are indicated.

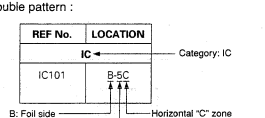
3. Parts location guides

Parts location are indicated by guide scale on the circuit board.

1) Signal pattern :



2) Double pattern :

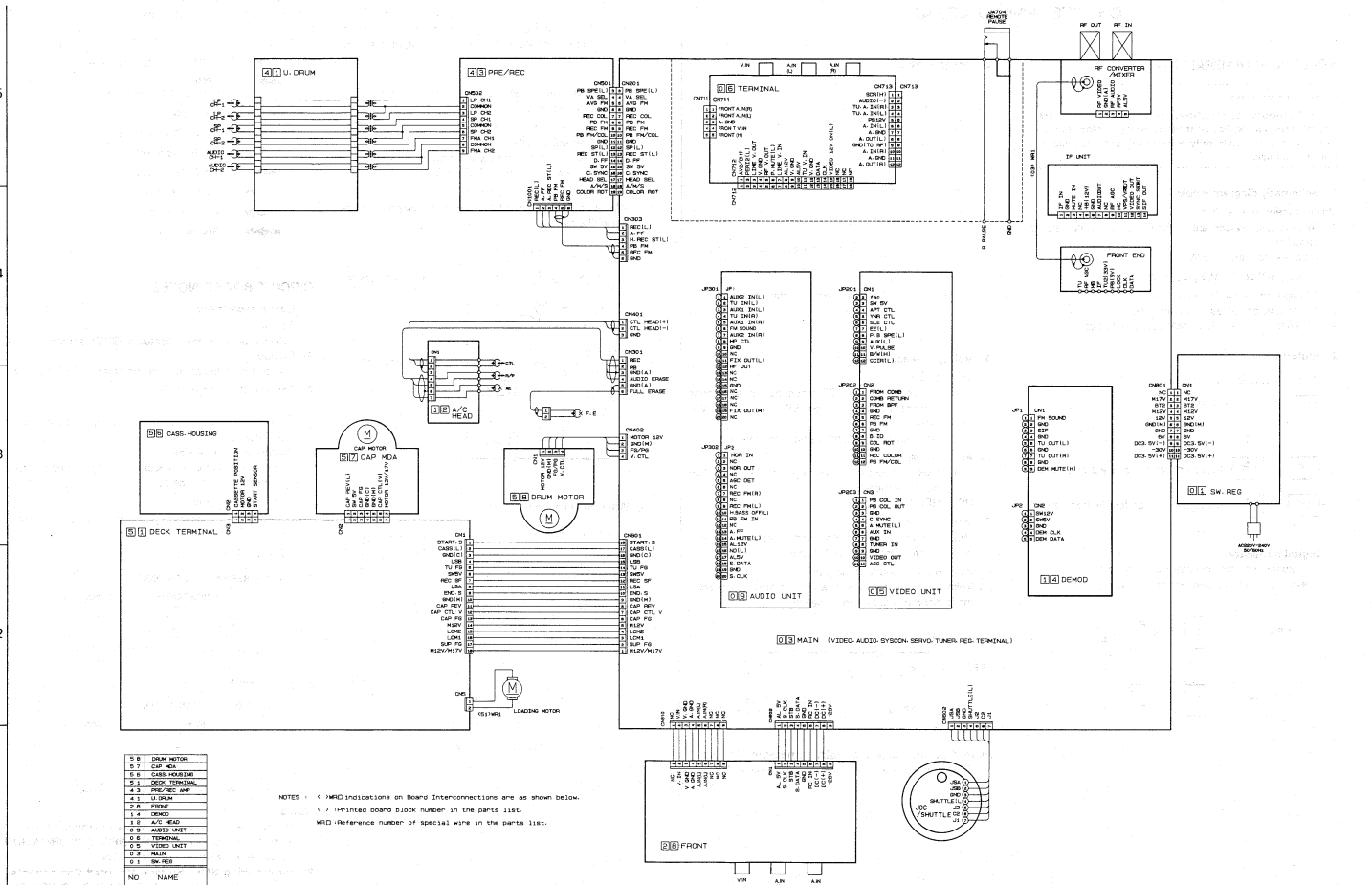


Notes:

1) **For general information in service manual, please refer to the Service Manual of GENERAL INFORMATION Edition 4 No. 82054D (January 1994).**
2) **For repairing SMC (Surface Mounted Components), please refer to the VIDEO SERVICE GUIDE No. VTS81001.**

S40884-01

4.1 BOARD INTERCONNECTIONS

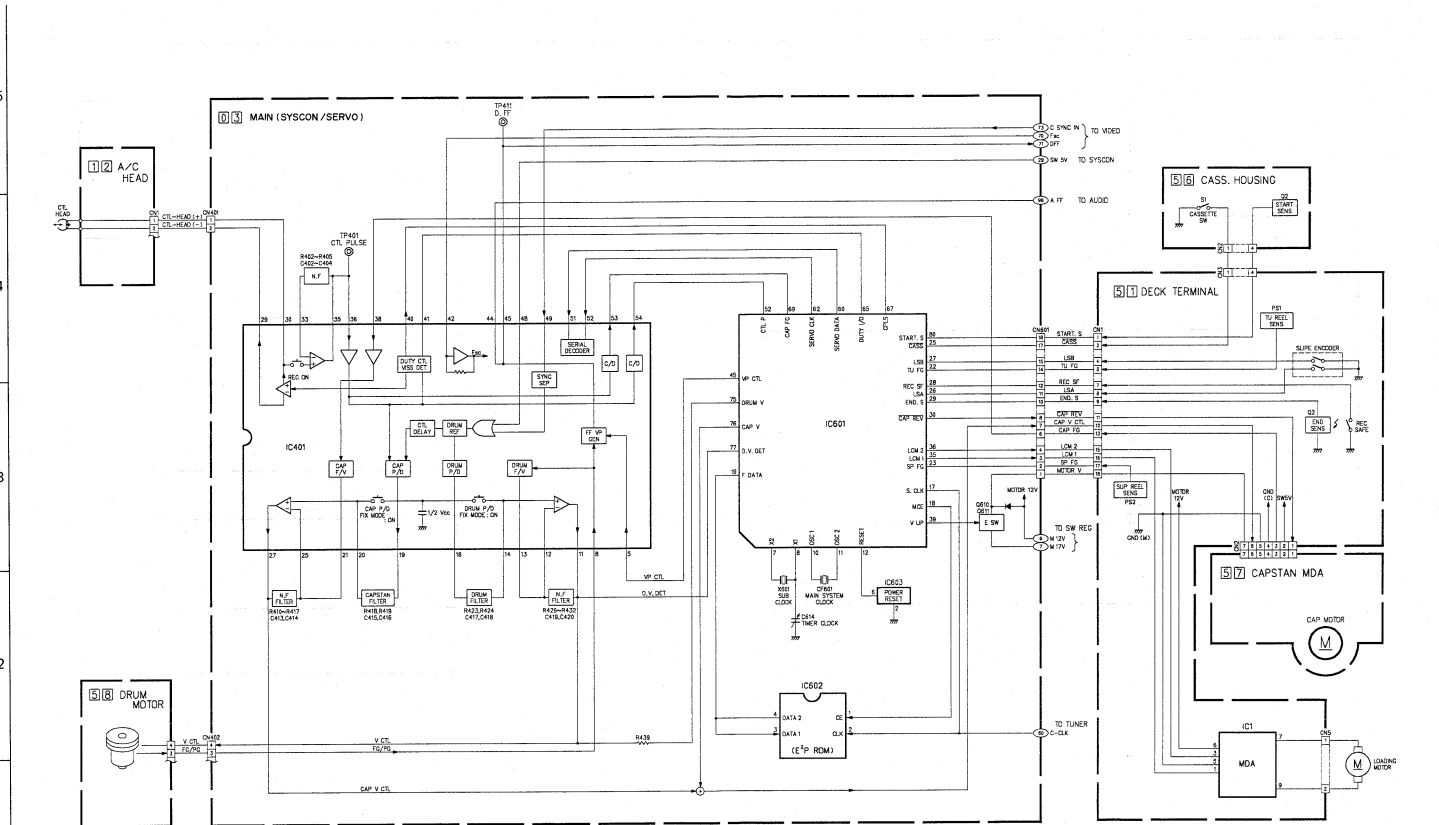


5 8	DRUM MOTOR
5 7	CAP MDA
5 6	CASS. HOUSING
5 1	DECK TERMINAL
4 3	PRE/REC AMP
4 1	U. DRUM
2 8	FRONT
1 4	DEMOD
1 0	A/C HEAD
0 9	AUDIO UNIT
0 6	TERMINAL
0 5	VIDEO UNIT
0 3	MAIN
0 1	SW. REG

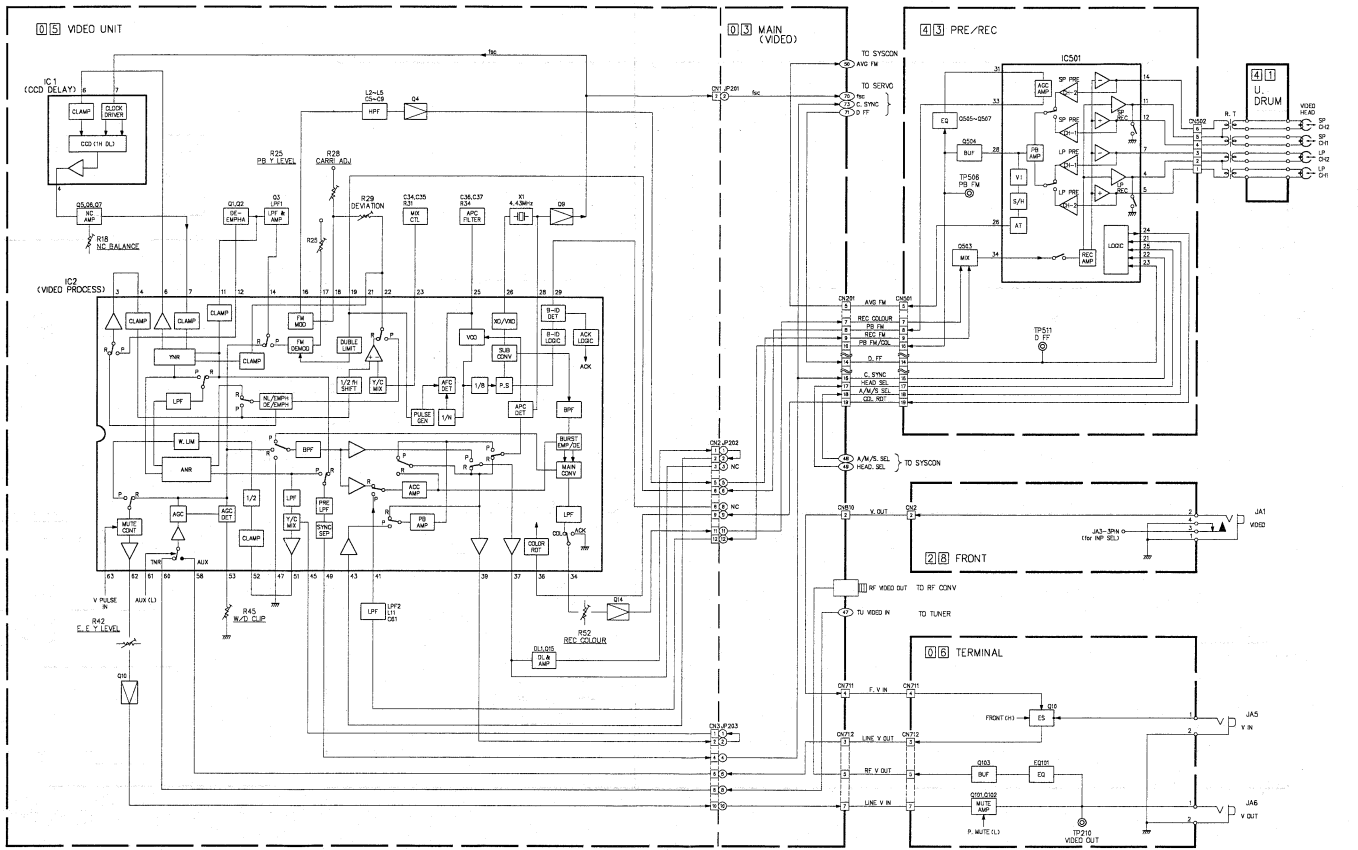
NO.	NAME

NOTES : ( ) WRD indications on Board Interconnections are as shown below.
( ) : Printed board block number in the parts list.
WRD : Reference number of special wire in the parts list.

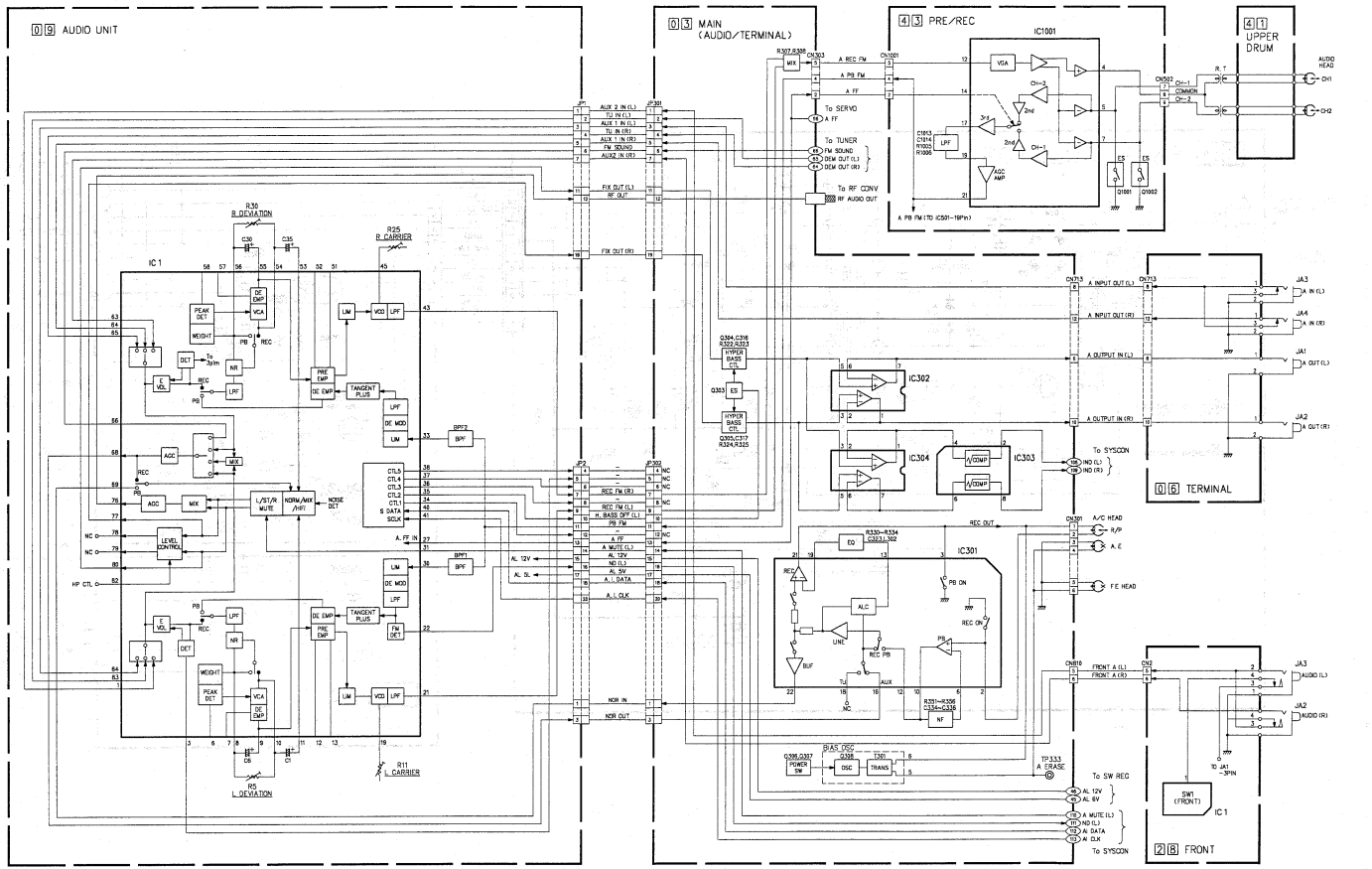
4.2 SYSCON/SERVO BLOCK DIAGRAM



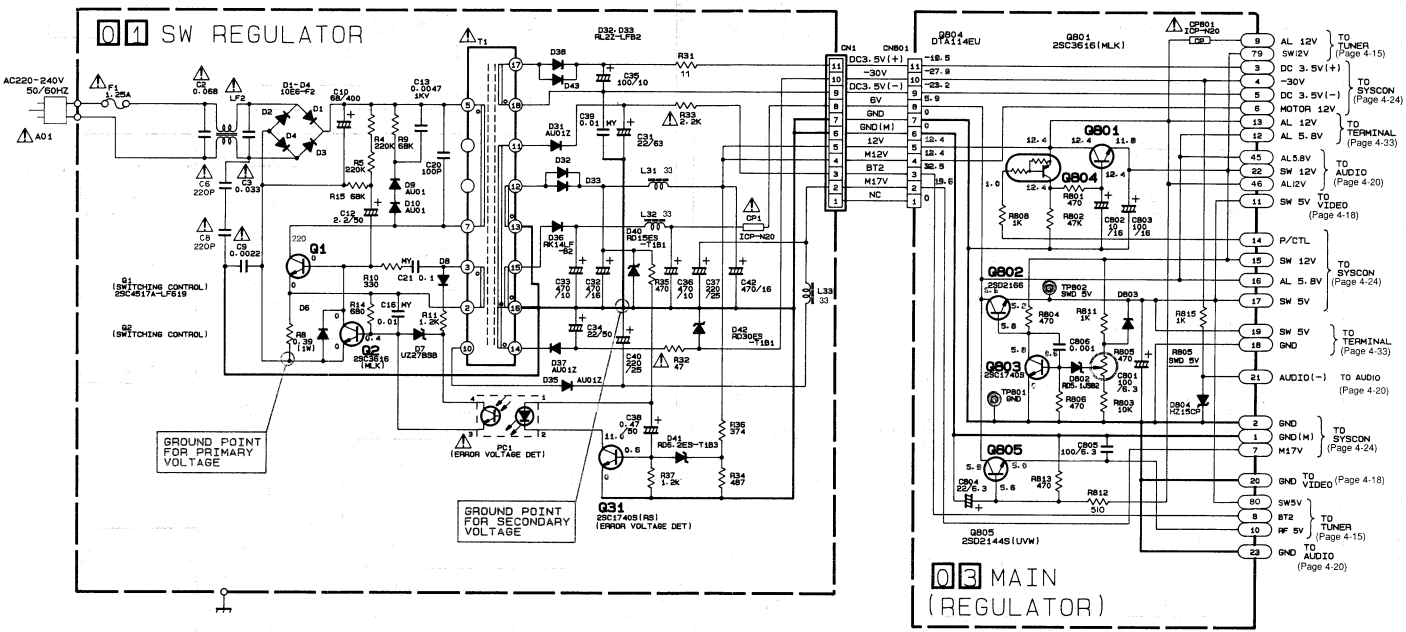
4.3 VIDEO BLOCK DIAGRAM



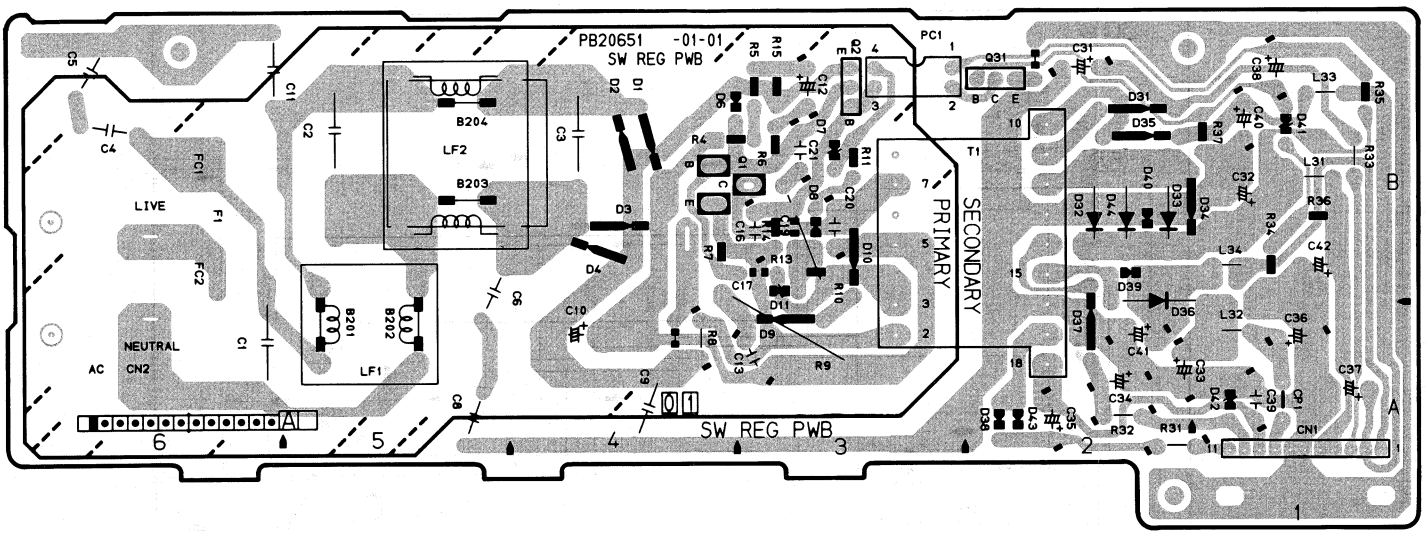
4.4 AUDIO BLOCK DIAGRAM



4.5 SWITCHING REGULATOR AND REGULATOR (MAIN) SCHEMATIC DIAGRAMS



4.6 SWITCHING REGULATOR CIRCUIT BOARD



MAIN CONPONENT PARTS LOCATION GUIDE

<SW REG PWB>

REF. No.	LOCATION
TRANSISTOR	
Q1	3B
Q2	3B
Q31	2B

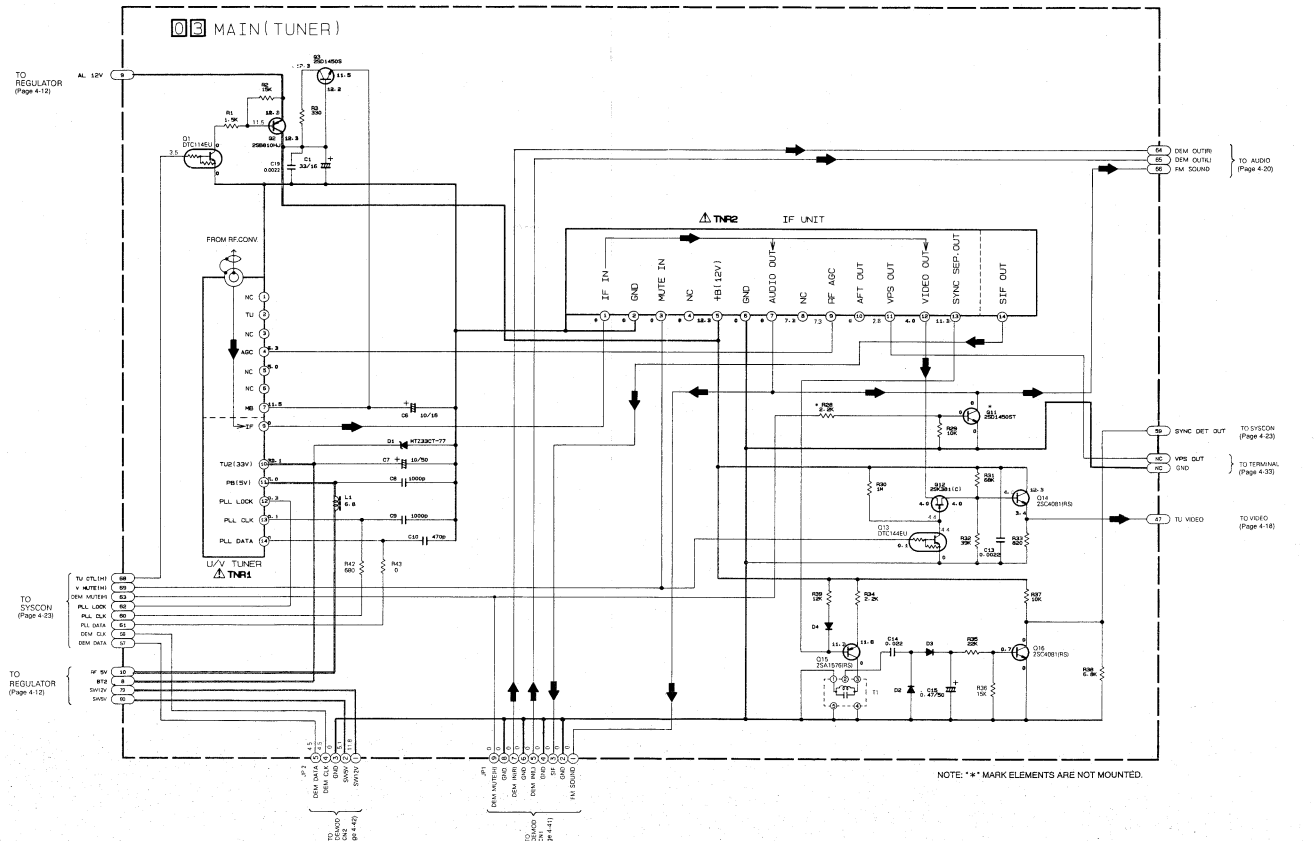
REF. No.	LOCATION
DIODE	
D1	4B
D2	4B
D3	4B
D4	4B
D6	4B
D7	3B
D8	3B
D9	3A
D10	3B
D31	2B

REF. No.	LOCATION
DIODE	
D32	2B
D33	2B
D35	2B
D36	2B
D37	2A
D38	2A
D40	2B
D41	1B
D42	1A
D43	2A

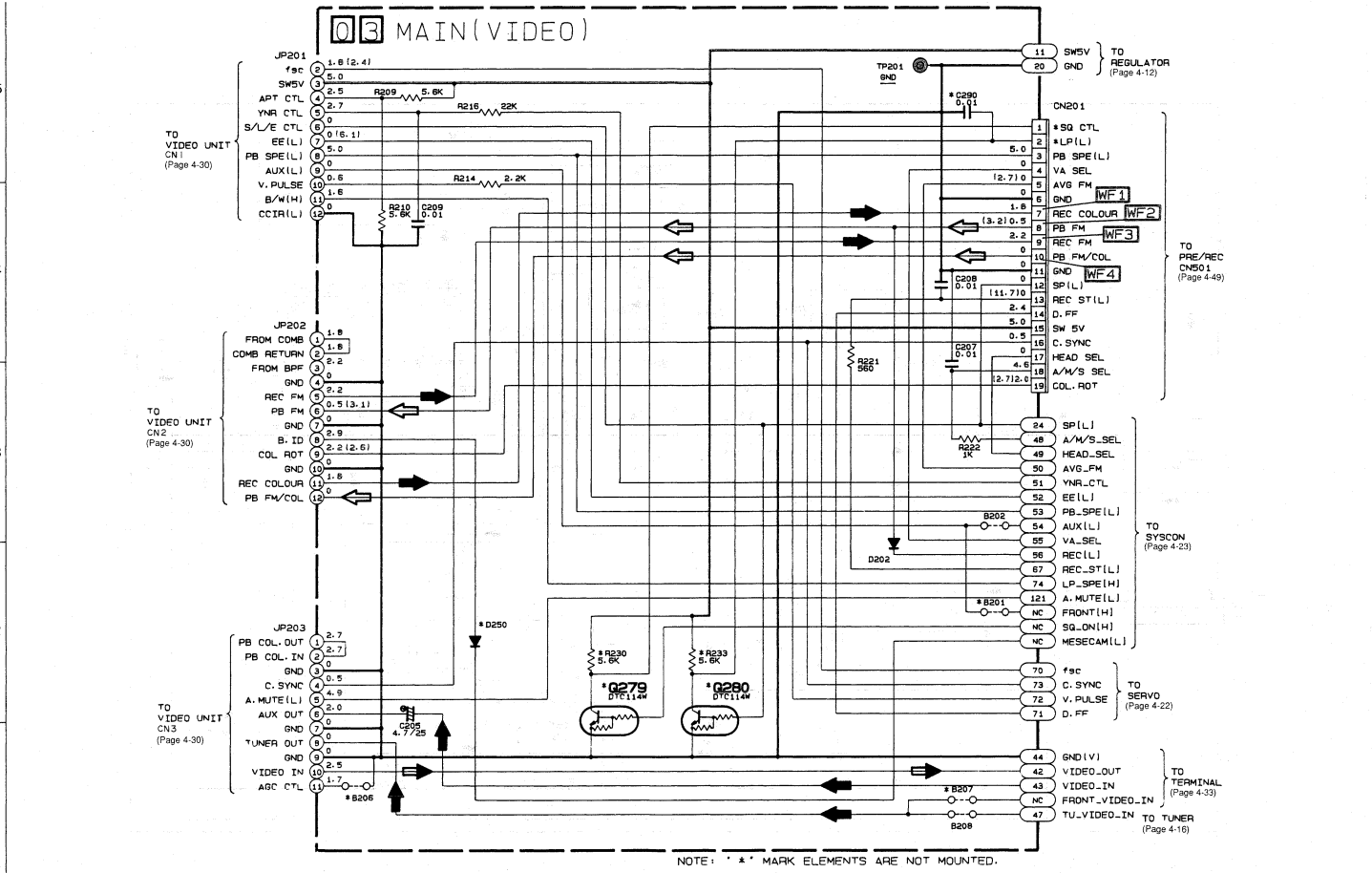
REF. No.	LOCATION
CONNECTOR	
CN1	1A

REF. No.	LOCATION
CP	
CP1	1A

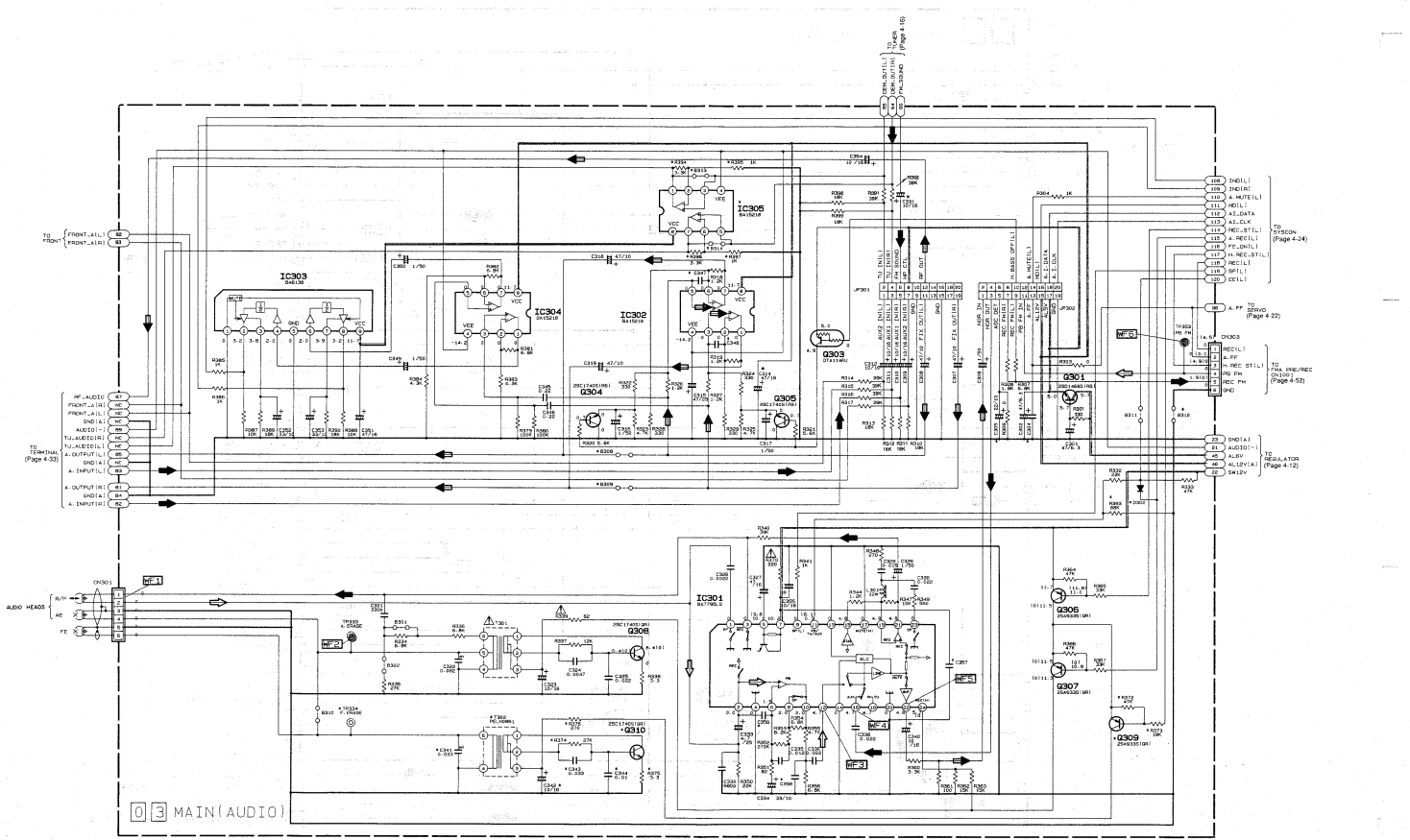
4.7 TUNER SCHEMATIC DIAGRAM



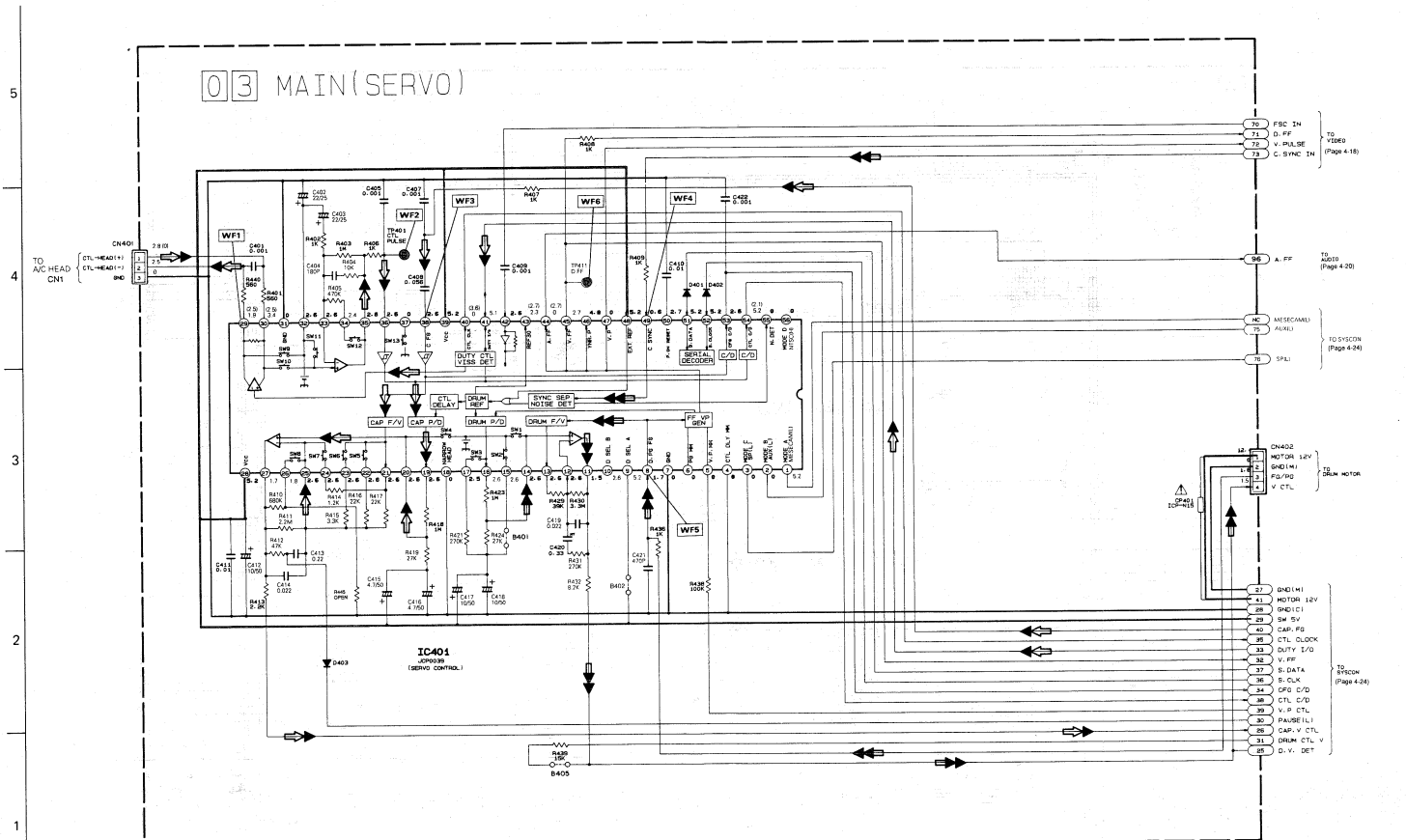
4.8 VIDEO SCHEMATIC DIAGRAM



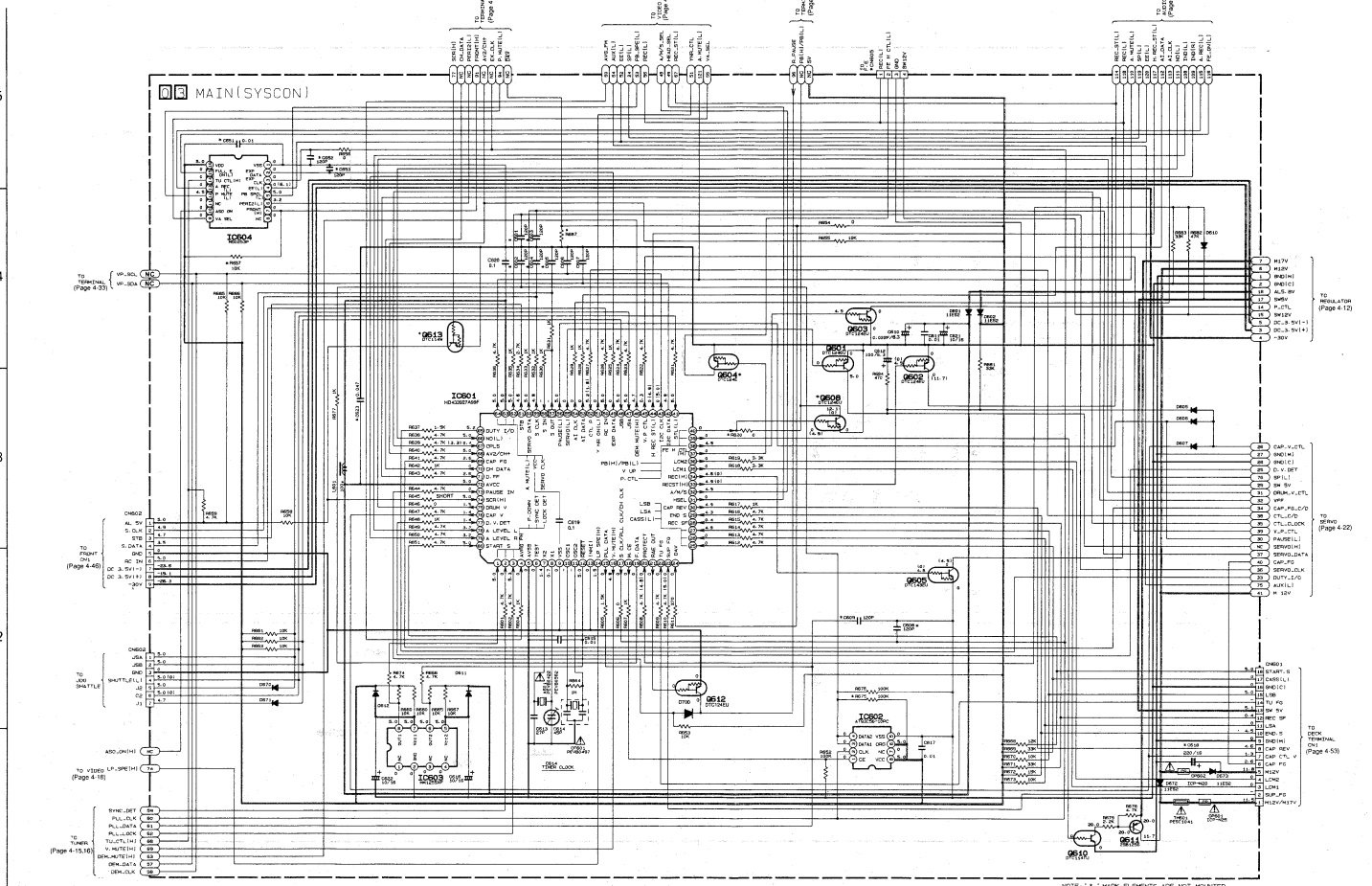
4.9 AUDIO SCHEMATIC DIAGRAM



4.10 SERVO SCHEMATIC DIAGRAM



4.11 SYSTEM CONTROL SCHEMATIC DIAGRAM



4.12 MAIN CIRCUIT BOARD

MAIN COMPONENT PARTS LOCATION GUIDE

<MAIN PWB>

REF. No.	LOCATION
IC	
IC301	14J
IC302	17N
IC303	15K
IC304	14N
IC401	17F
IC601	8D
IC602	6F
IC603	8G
IC604	13G

REF. No.	LOCATION
TRANSISTOR	
Q1	4L
Q2	4L
Q3	6K
Q12	4M
Q13	5M
Q14	5M
Q15	8M
Q16	10K
Q301	18N
Q302	14N
Q303	19N
Q304	16N
Q305	17N
Q306	12M
Q307	11L
Q308	11M
Q601	11C
Q602	10J
Q603	8C
Q605	7C
Q608	8C
Q610	5I
Q611	6I
Q612	6E
Q701	14O
Q702	2G

REF. No.	LOCATION
TRANSISTOR	
Q801	2D
Q802	3D
Q803	3C
Q804	2E
Q805	2C

REF. No.	LOCATION
DIODE	
D1	5K
D2	10L
D3	9L
D4	8M
D202	16J
D401	15F
D402	15F
D403	12F
D601	3D
D602	4D
D605	12F
D606	12F
D607	11F
D610	2B
D611	8F
D612	9G
D670	5B
D671	5B
D672	7K
D673	6J
D700	8F
D802	4C
D803	4C
D804	2H

REF. No.	LOCATION
ADJUSTMENT	
R805	3C
C614	6G

REF. No.	LOCATION
TEST POINT	
TP201	21D
TP333	10L
TP353	20J
TP401	21D
TP411	20F
TP801	1C
TP802	3B

REF. No.	LOCATION
CONNECTOR	
CN201	18L
CN301	13M
CN303	19N
CN401	20D
CN402	10K
CN601	8J
CN602	2A
CN711	21O
CN712	19O
CN713	17O
CN801	2E
CN802	2A
CN810	21C

REF. No.	LOCATION
CIRCUIT PROTECTOR	
CP401	8K
CP601	7J
CP602	6J
CP801	2E

LEADLESS COMPONENT PARTS LOCATION GUIDE

<MAIN PWB>

REF. No.	LOCATION
IC	
IC601	8D
IC603	8G

REF. No.	LOCATION
TRANSISTOR	
Q1	4L
Q13	5M
Q14	5M
Q15	8M
Q16	10K
Q276	17K
Q277	17K
Q279	18K
Q280	17J
Q303	19N
Q601	11C
Q602	10J
Q603	8C
Q604	8C
Q605	7C
Q608	8C
Q610	5I
Q612	6E
Q613	11I
Q804	2E

REF. No.	LOCATION
RESISTOR	
R1	4L
R2	4L
R3	6K
R28	9M
R29	10M
R30	5M
R31	5M
R32	6M
R33	6M
R35	10L
R36	9L
R38	9K
R39	8L
R41	9M
R42	5L

REF. No.	LOCATION
RESISTOR	
R43	5L
R101	20B
R102	19B
R103	19A
R209	21F
R210	22F
R212	15J
R214	21G
R215	21H
R216	21D
R221	16J
R222	15I
R230	17K
R232	18K
R233	17K
R234	14I
R235	21F
R301	18N
R302	14N
R303	20N
R304	20N
R307	19N
R308	19N
R309	20M
R310	21L
R311	21K
R312	19K
R313	21K
R314	21K
R315	19K
R316	20L
R317	21M
R318	16N
R319	17N
R320	16M
R321	17N
R322	16N
R323	16M
R324	17N
R325	17N
R326	16N
R327	17N
R328	17N
R329	17N

REF. No.	LOCATION
RESISTOR	
R334	12N
R335	12N
R336	12M
R337	12M
R338	12M
R339	15L
R340	13K
R347	14J
R348	14K
R349	14K
R350	12I
R351	13I
R352	13I
R353	13I
R354	13I
R355	13I
R356	13I
R362	14J
R364	12L
R365	12L
R366	11L
R367	11L
R370	13J
R372	11L
R373	11L
R374	13L
R375	13L
R379	15O
R380	15N
R381	14O
R382	14N
R383	15O
R384	14N
R387	15L
R388	15K
R389	15L
R390	15K
R391	15M
R392	15M
R393	13J
R394	15N
R395	15N
R396	15N
R397	15N

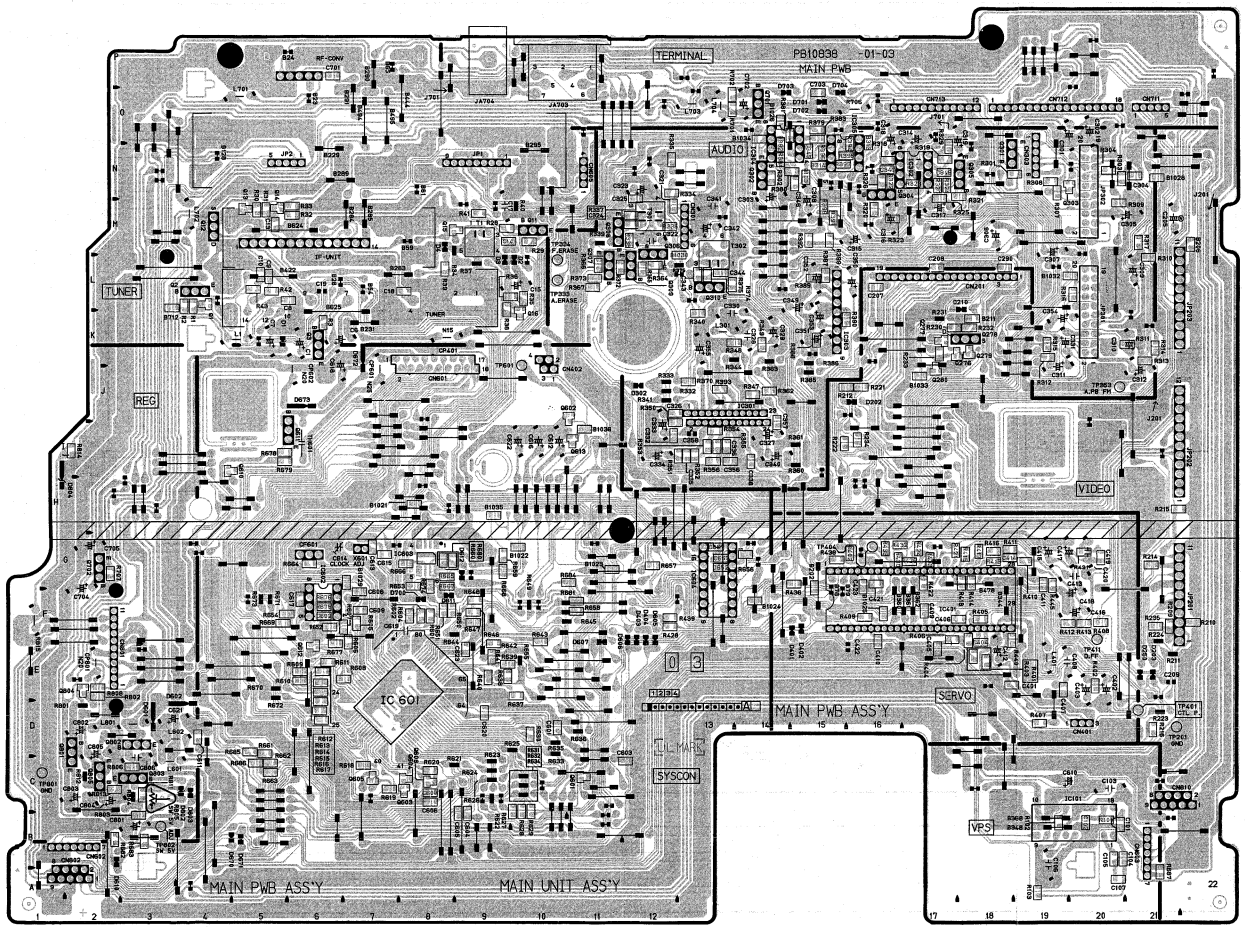
REF. No.	LOCATION
RESISTOR	
R398	15M
R399	15M
R401	18E
R402	20E
R403	18E
R404	18E
R405	18F
R406	17F
R407	19D
R408	20F
R409	16F
R410	19G
R411	18G
R412	20F
R413	20F
R414	18G
R415	18G
R416	18G
R417	18G
R418	18G
R419	18G
R421	17G
R422	17G
R423	17G
R424	17G
R428	12F
R429	17G
R430	16G
R431	20G
R432	16G
R433	16G
R436	15G
R438	15G
R439	12F
R440	18F
R445	19F
R601	8F
R602	8F
R604	8F
R605	7F
R606	7E
R607	7F
R608	7E
R609	6E

REF. No.	LOCATION
RESISTOR	
R610	6E
R611	6E
R612	6E
R613	6E
R614	6E
R615	6D
R616	6D
R617	6D
R618	7C
R619	7C
R620	8C
R627	10B
R628	10B
R629	10B
R630	10D
R637	10E
R638	9E
R639	9E
R640	9E
R641	9E
R642	9E
R643	10F
R646	9F
R647	9F
R648	9F
R650	8F
R651	8F
R652	6F
R653	8F
R654	5F
R656	14G
R657	12G
R658	11F
R659	9G
R660	8G
R661	5D
R662	5C
R663	5C
R664	6G
R665	8G
R666	8G
R667	8F
R668	9G
R669	5F
R674	8F

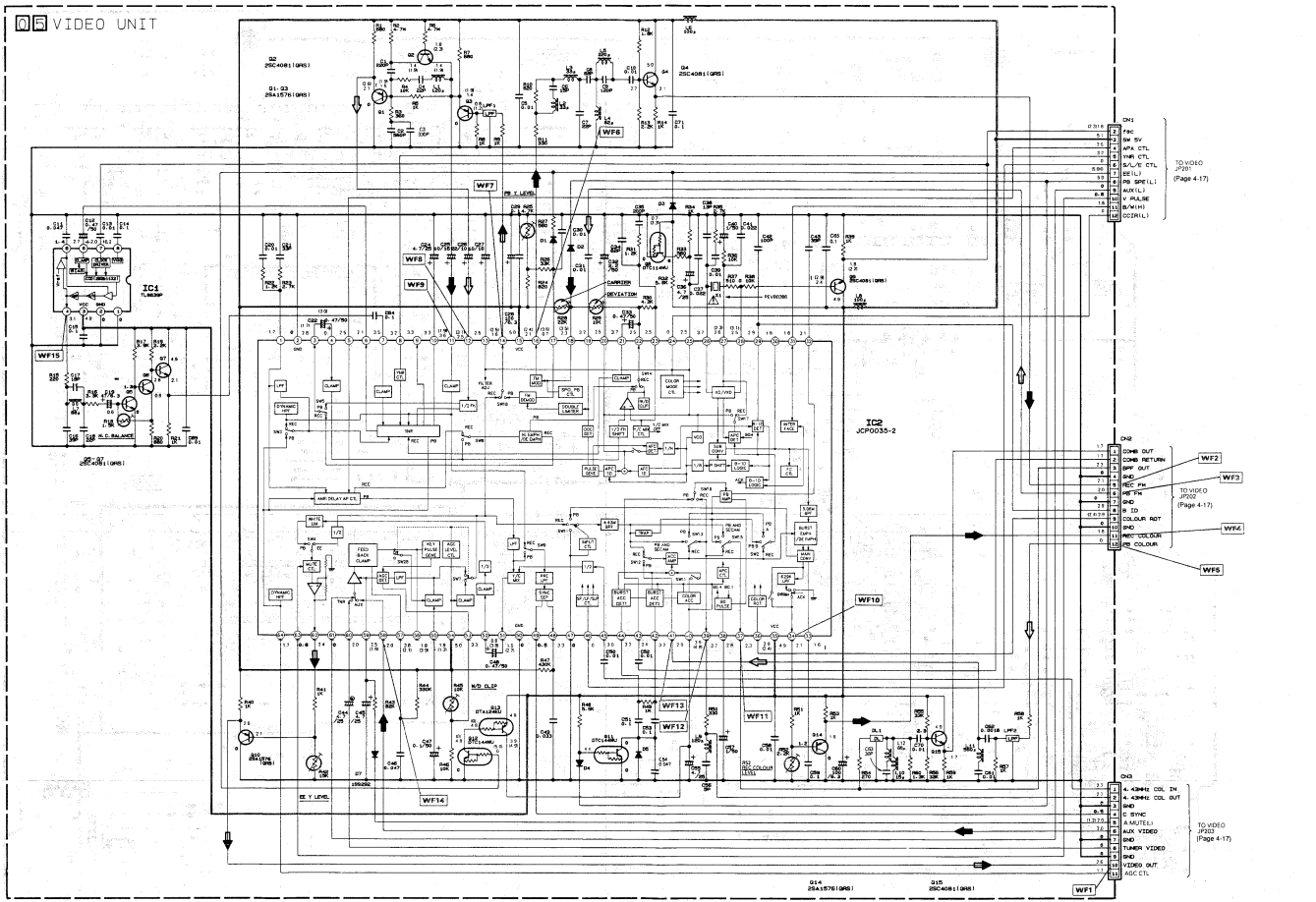
REF. No.	LOCATION
RESISTOR	
R675	6F
R676	6F
R677	6E
R678	5I
R679	5I
R680	8G
R681	11F
R682	2B
R683	3B
R684	11G
R685	5D
R686	5C
R687	21A
R701	13O
R702	13O
R707	2G
R802	2E
R803	3B
R806	3C
R808	2E
R811	3C
R813	2C
R814	2I

REF. No.	LOCATION
CAPACITOR	
C8	6L
C9	5L
C10	5L
C13	5M
C14	9M
C18	8L
C101	20B
C102	20B
C104	21B
C105	20B
C107	20A
C207	16L
C208	17K
C290	18L
C304	21N
C321	12M
C324	12M
C325	12M
C326	12J

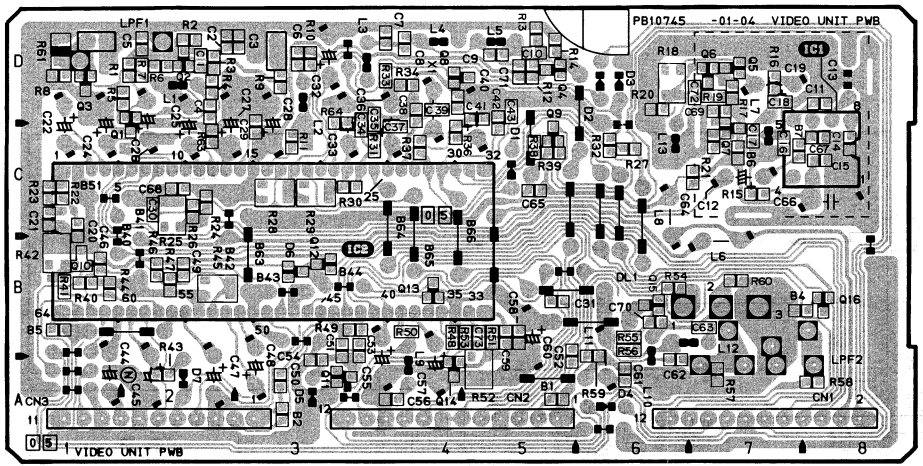
REF. No.	LOCATION
CAPACITOR	
C332	12I
C335	13I
C336	13I
C338	14I
C343	13L
C344	13L
C345	15N
C346	15N
C347	16N
C348	17N
C356	13I
C357	14I
C401	19E
C404	18F
C405	17E
C406	17F
C407	19E
C409	17F
C410	16E
C411	19E
C414	18G
C419	20G
C421	16G
C423	16G
C601	10D
C602	6F
C603	12C
C604	9B
C605	9B
C606	8C
C607	8C
C608	7F
C609	7F
C611	4D
C613	7G
C615	7G
C617	6F
C620	9D
C623	9E
C651	13G
C652	13G
C653	13G
C701	6P
C703	15O


TERMINAL
PB10839 -01-03
MAIN PWB
AUDIO
TUNER
REG
VIDEO
SERVO
VPS
SYSCON
IC601
MAIN PWB ASS'Y
MAIN UNIT ASS'Y
MAIN PWB ASS'Y

4.13 VIDEO UNIT SCHEMATIC DIAGRAM



4.14 VIDEO UNIT CIRCUIT BOARD



MAIN CONPONENT PARTS LOCATION GUIDE

<VIDEO UNIT PWB>

REF. No.	LOCATION
IC	
IC1	8C
IC2	4B

REF. No.	LOCATION
TRANSISTOR	
Q1	2D
Q2	2D
Q3	1D
Q4	5D
Q5	7D
Q6	7D
Q7	7C
Q8	4D
Q9	5C
Q10	1B
Q11	3A
Q12	3B
Q13	4B
Q14	4A
Q15	6B

REF. No.	LOCATION
DIODE	
D1	5C
D2	6D
D3	6D
D4	6A
D5	3A
D7	2A

REF. No.	LOCATION
CONNECTOR	
CN1	8A
CN2	5A
CN3	1A

REF. No.	LOCATION
ADJUSTMENT	
R18	6D
R25	2C
R28	3C
R29	3C
R42	1B
R45	2B
R52	5A

LEADLESS COMPONENT PARTS LOCATION GUIDE

<VIDEO UNIT PWB>

REF. No.	LOCATION
TRANSISTOR	
Q1	2D
Q2	2D
Q3	1D
Q4	5D
Q5	7D
Q6	7D
Q7	7C
Q8	4D
Q9	5C
Q10	1B
Q11	3A
Q12	3B
Q13	4B
Q14	4A
Q15	6B
Q16	8B

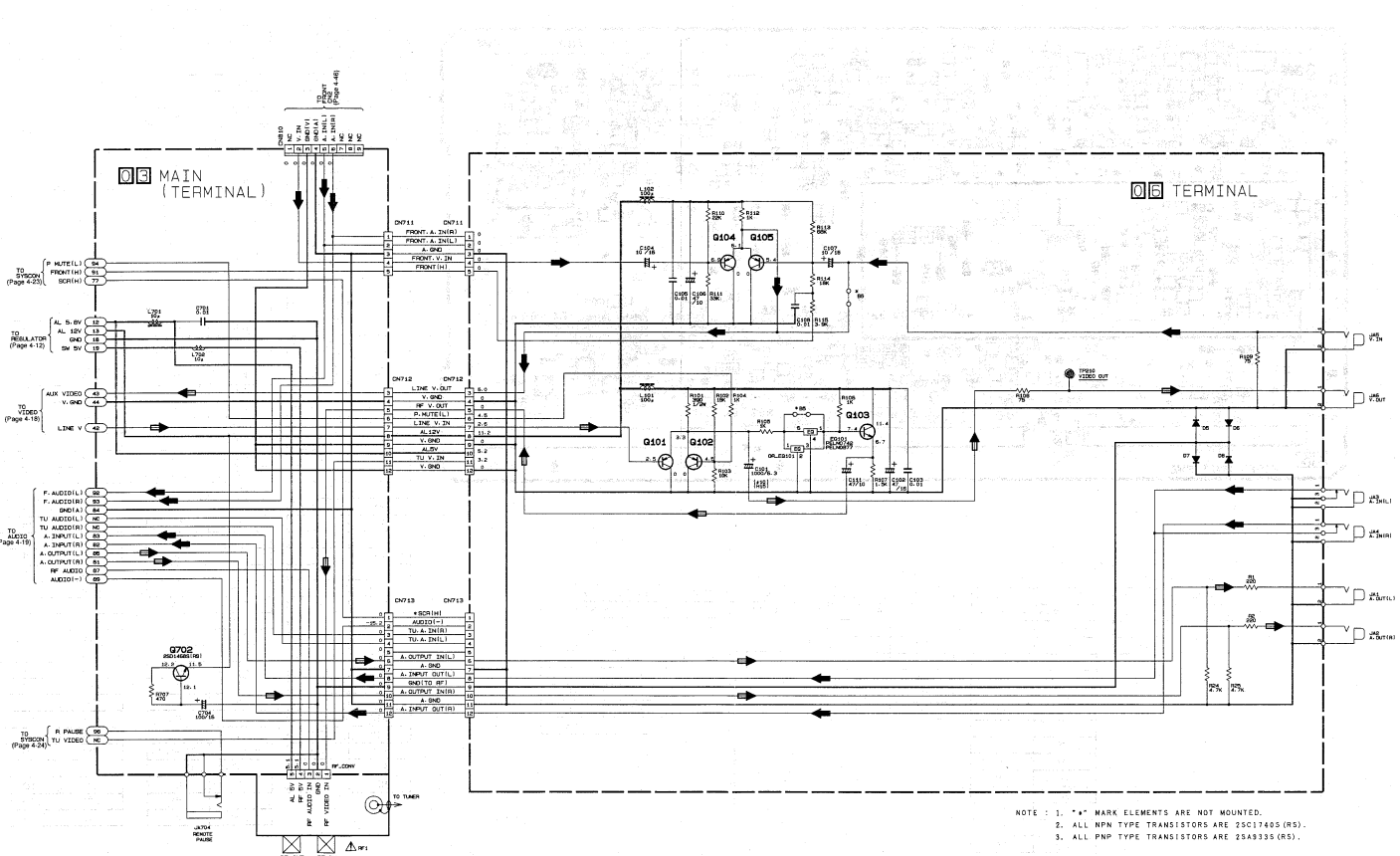
REF. No.	LOCATION
DIODE	
D6	3B

REF. No.	LOCATION
RESISTOR	
R1	2D
R2	2D
R3	2D
R4	2D
R5	2D
R6	2D
R7	2D
R8	1D
R9	3D
R10	3D
R11	3C
R12	5D
R13	5D
R14	5D
R15	7C
R16	7D
R17	7D
R18	6D
R19	7D
R20	6D
R21	7C
R22	1C

REF. No.	LOCATION
RESISTOR	
R23	1C
R24	2C
R25	2C
R26	2C
R27	6C
R28	3C
R29	3C
R30	3C
R31	4C
R32	6C
R33	4D
R34	4D
R35	4D
R36	4C
R37	4C
R38	5C
R39	5C
R40	1B
R41	1B
R42	1B
R43	2A
R44	1B
R45	2B
R46	2B
R47	2B
R48	4B
R49	4B
R50	4B
R51	5B
R52	5A
R53	5B
R54	6B
R55	6B
R56	6B
R57	7A
R58	8A
R59	6A
R60	7B
R61	1D
R62	2C
R63	3D
R64	3C

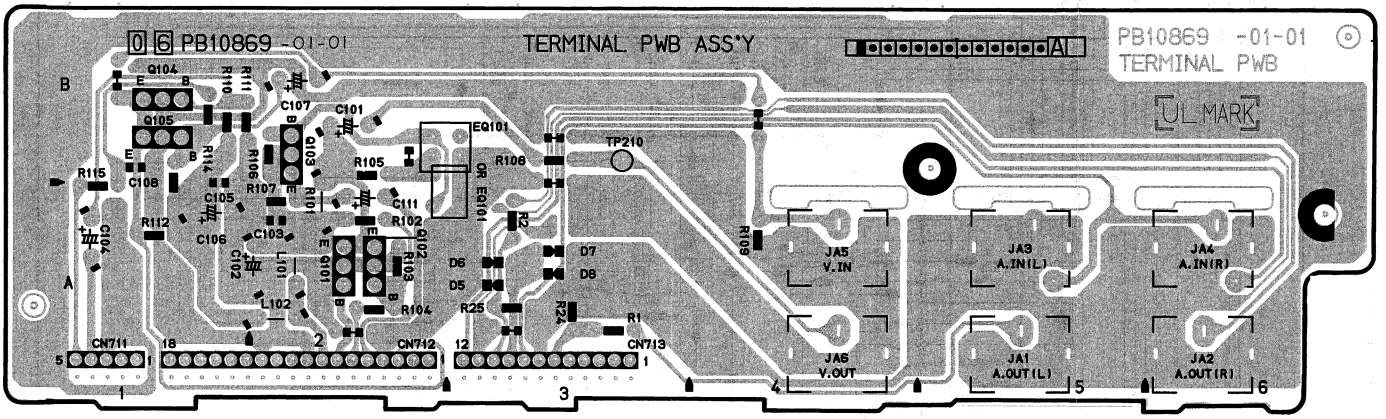
REF. No.	LOCATION
CAPACITOR	
C1	2D
C2	2D
C3	3D

REF. No.	LOCATION
CAPACITOR	
C4	2D
C5	2D
C6	3D
C7	4D
C8	4D
C9	5D
C10	5D
C11	8D
C14	8C
C15	8C
C16	7C
C17	7C
C18	7D
C20	1C
C21	1C
C29	3C
C30	2C
C31	5B
C34	4D
C35	4D
C37	4C
C38	4D
C39	4D
C41	5D
C42	5D
C43	5D
C46	1B
C49	2B
C50	3A
C51	3B
C52	5A
C53	4B
C54	3A
C56	4A
C58	5B
C59	5B
C61	6A
C62	6A
C63	7B
C64	7C
C65	5C
C67	8C
C68	2C
C69	7D
C70	6B
C71	5D
C72	7D
C73	5B



NOTE : 1. "*" MARK ELEMENTS ARE NOT MOUNTED.
2. ALL NPN TYPE TRANSISTORS ARE 2SC1740S(R5).
3. ALL PNP TYPE TRANSISTORS ARE 2SA933S(R5).

S16140

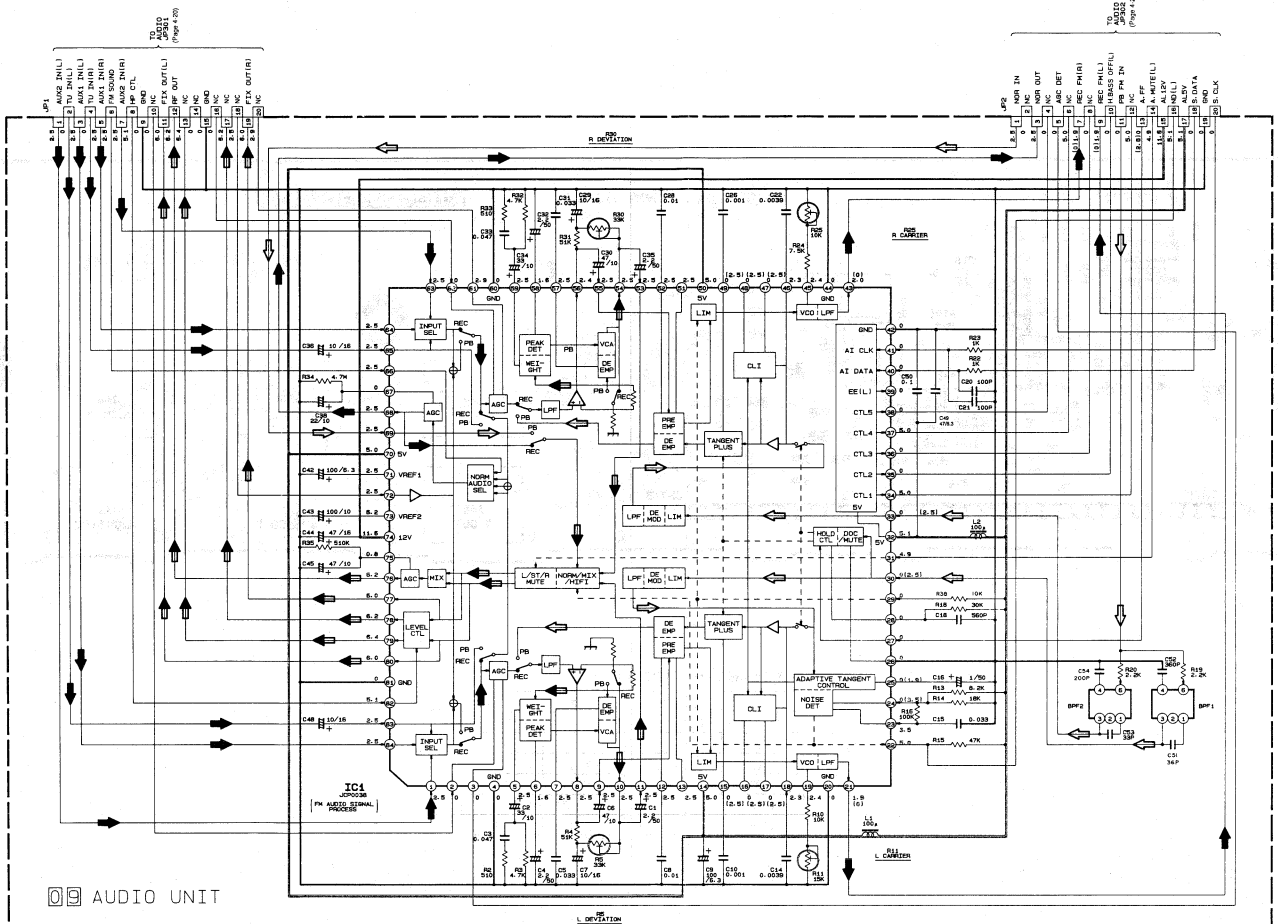


MAIN COMPONENT PARTS LOCATION GUIDE

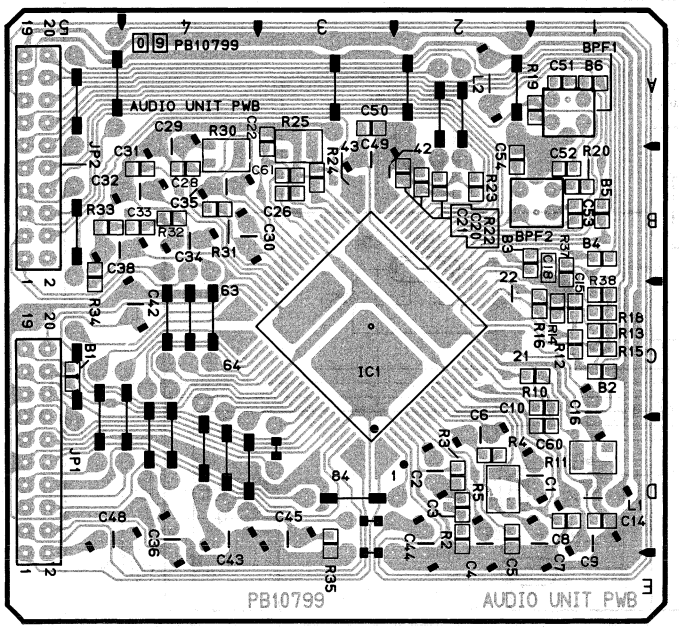
REF. No.	LOCATION
TRANSISTOR	
Q101	2A
Q102	2A
Q103	2B
Q104	1B
Q105	1B

REF. No.	LOCATION
CONNECTOR	
CN711	1A
CN712	2A
CN713	3A
TEST POINT	
TP210	3B

4.17 AUDIO UNIT SCHEMATIC DIAGRAM



4.18 AUDIO UNIT CIRCUIT BOARD



LEADLESS COMPONENT PARTS LOCATION GUIDE

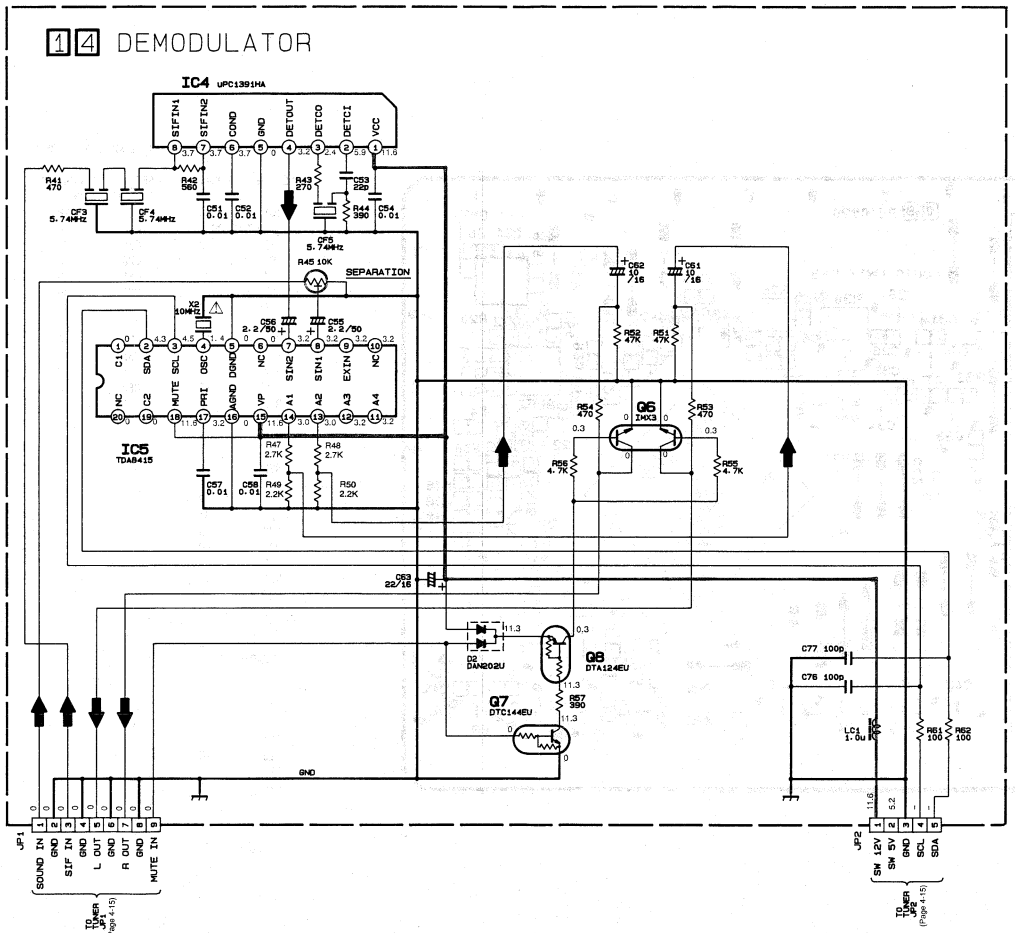
REF. No.	LOCATION
IC	
IC1	3C
RESISTOR	
R2	2D
R3	2D
R4	2D
R5	2D
R10	1C
R11	1D
R12	1C
R13	1C
R14	1C
R15	1C
R16	1C
R18	1C
R19	1A
R20	1B
R22	2B
R23	2B
R24	3B
R25	3A
R30	4B
R31	4B
R32	4B
R33	4B
R34	5C
R35	3D
R37	1B
R38	1C
CAPACITOR	
C3	2D
C5	2D
C8	1D
C10	1C
C14	1D
C15	1C
C18	1B
C20	2B

REF. No.	LOCATION
CAPACITOR	
C21	2B
C22	3A
C26	3B
C28	4B
C31	4B
C33	4B
C50	3A
C51	1A
C52	1B
C53	1B
C54	2B
C60	1D
C61	3B

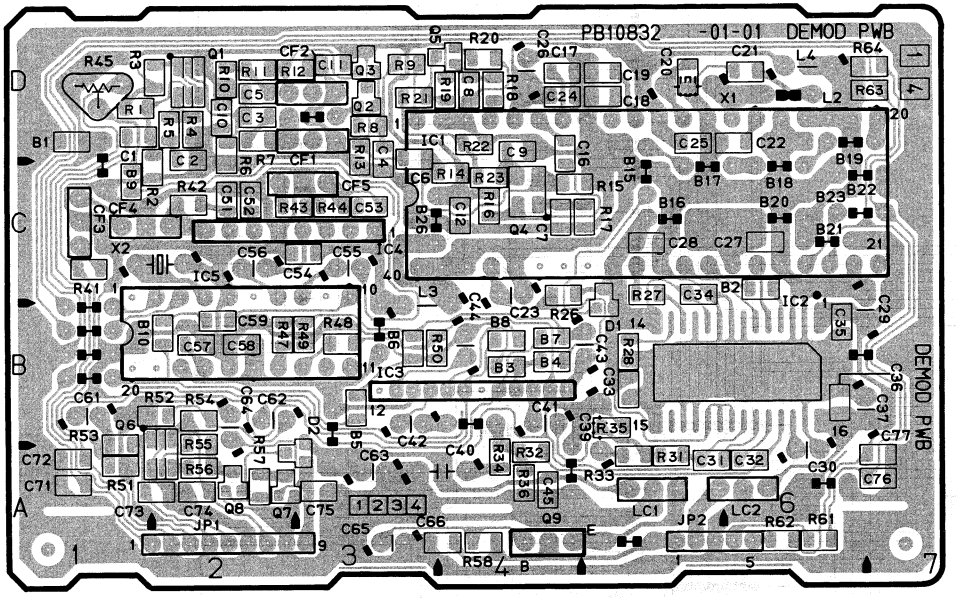
MAIN COMPONENT PARTS LOCATION GUIDE

REF. No.	LOCATION
IC	
IC1	3C
ADJUSTMENT	
R5	2D
R11	1D
R25	3A
R30	4B
CONNECTOR	
JP1	5D
JP2	5B

4.19 DEMODULATOR SCHEMATIC DIAGRAM



4.20 DEMODULATOR CIRCUIT BOARD



MAIN COMPONENT PARTS LOCATION GUIDE

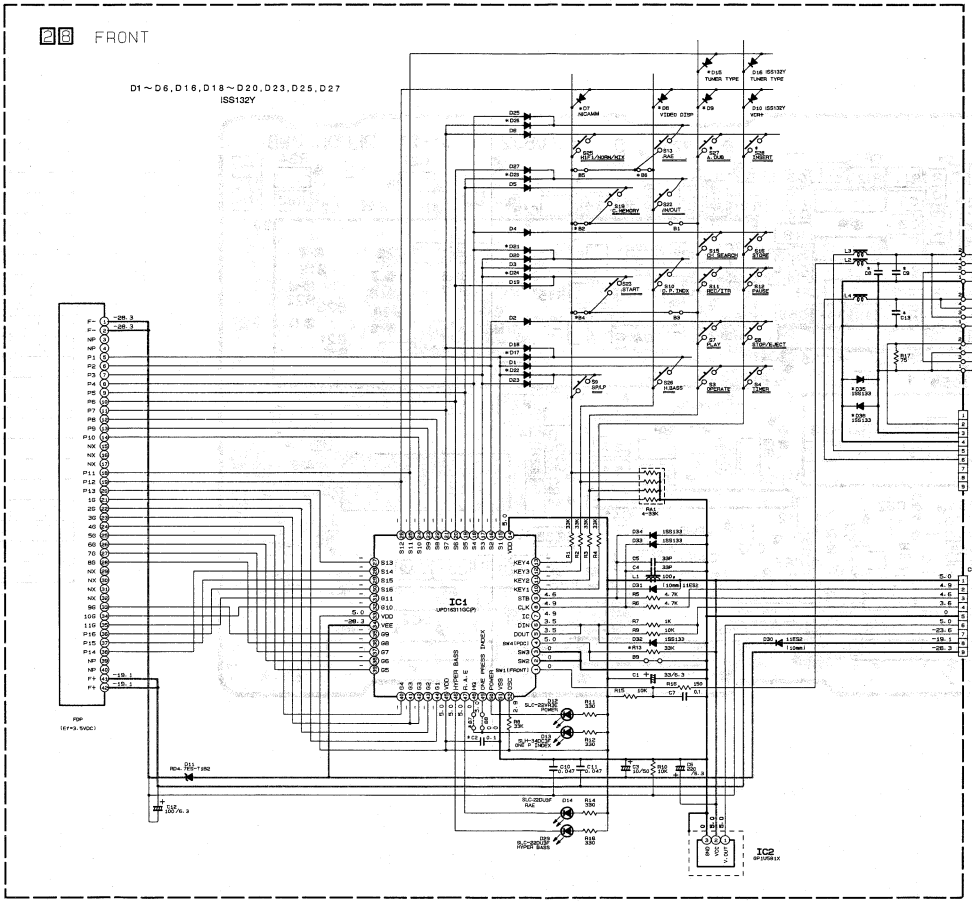
<DEMOD PWB>

REF. No.	LOCATION
IC	
IC1	4D
IC2	6B
IC3	3B

REF. No.	LOCATION
TRANSISTOR	
Q1	2D
Q2	3D
Q3	3D
Q4	4C
Q5	4D
Q6	2A
Q7	2A
Q8	2A

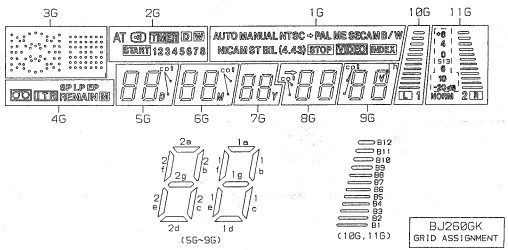
REF. No.	LOCATION
DIODE	
D1	5B
D2	3A

4.21 FRONT SCHEMATIC DIAGRAM



4.22 FRONT CIRCUIT BOARD

FDP GRID ASSIGNMENT



MAIN CONPONENT PARTS LOCATION GUIDE

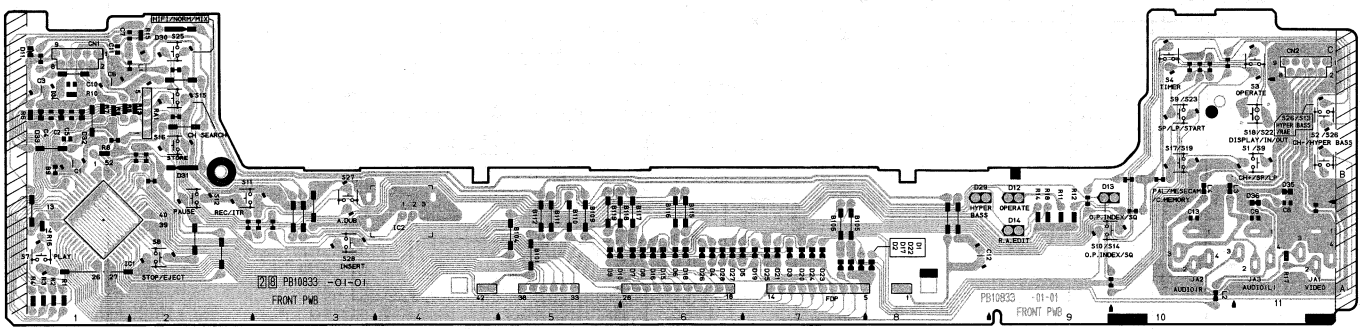
<FRONT PWB>

REF. No.	LOCATION
IC	
IC1	1A
IC2	4A

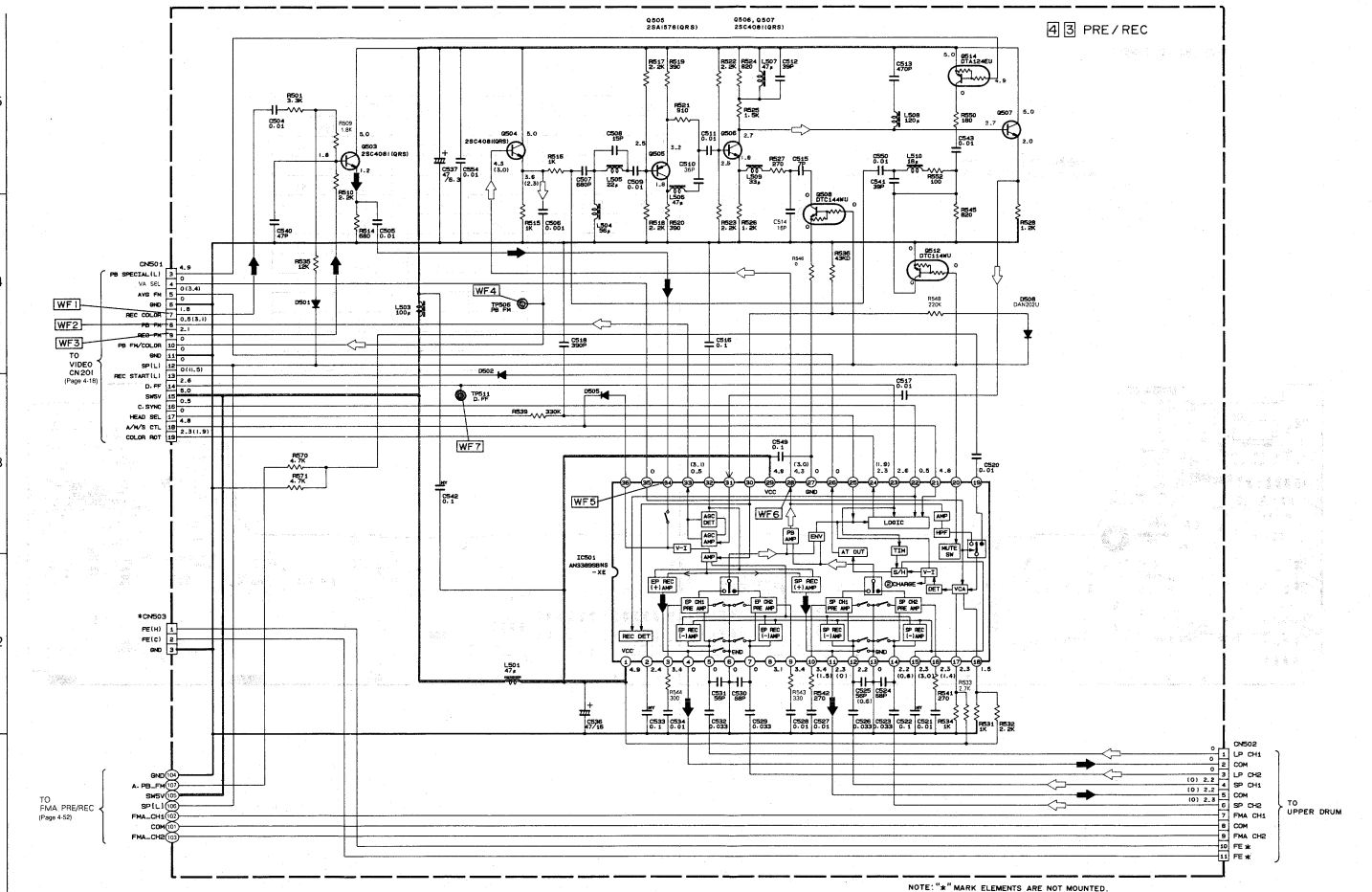
REF. No.	LOCATION
CONNECTOR	
CN1	1C

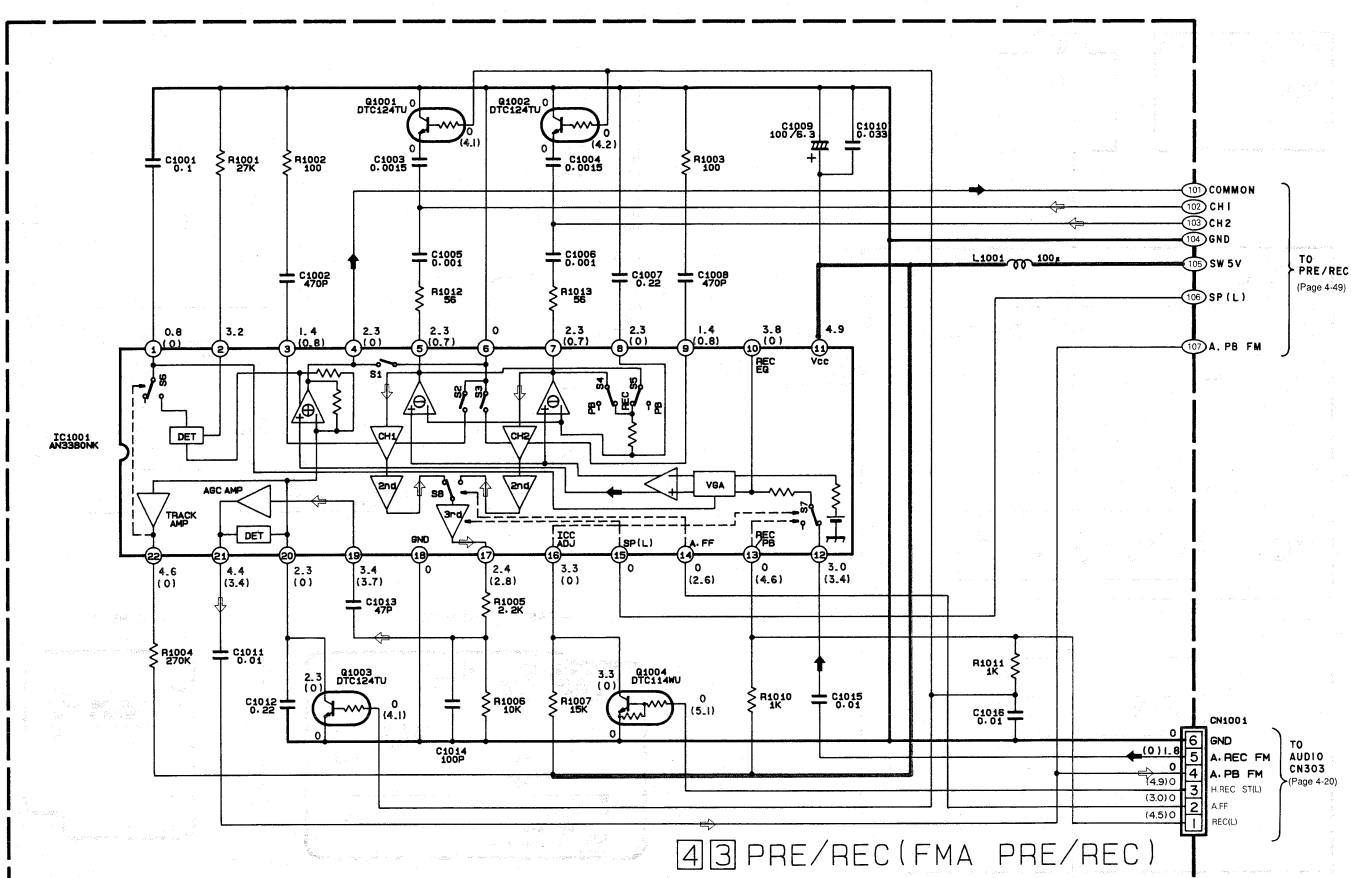
REF. No.	LOCATION
DIODE	
D1	8A
D2	8A
D3	7A
D4	6A
D5	6A
D6	6A
D7	6A
D10	6A
D11	1C
D12	9B
D13	9B
D15	6A

REF. No.	LOCATION
DIODE	
D17	8A
D20	7A
D22	8A
D24	7A
D26	6A
D28	6A
D29	8B
D30	2C
D31	2B
D32	1B
D33	1B
D34	1B

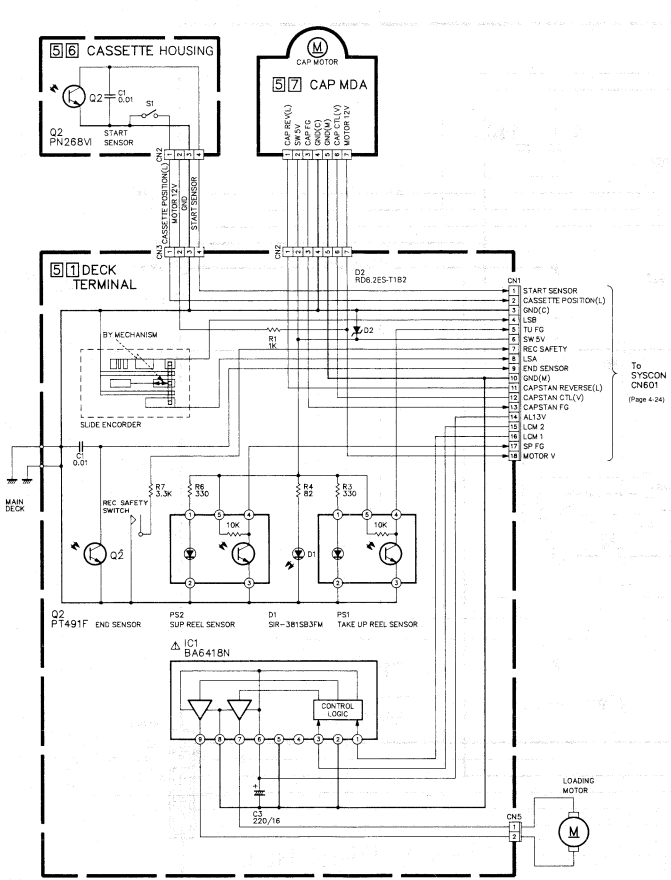


4.23 PRE/REC SCHEMATIC DIAGRAM



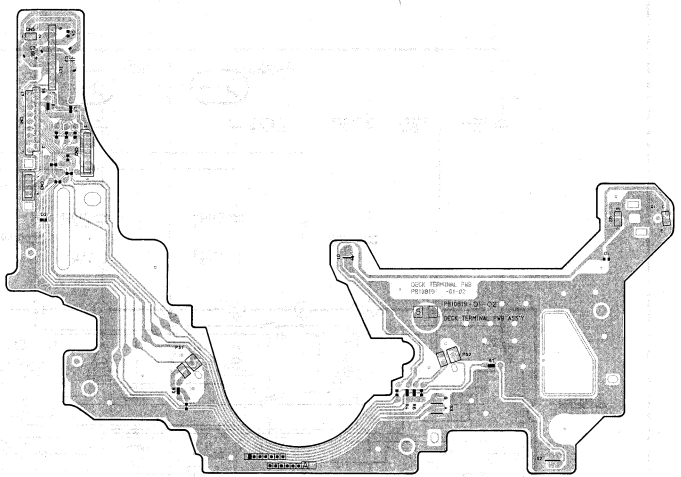

Q1001 DTC124TU
Q1002 DTC124TU
C1001 0.1
R1001 27K
R1002 100
C1003 0.0015
C1004 0.0015
R1003 100
C1009 100/6.3
C1010 0.033
C1002 470P
C1005 0.001
C1006 0.001
C1007 0.22
C1008 470P
R1012 56
R1013 56
IC1001 AN3380NK
DET
CH1
CH2
AGC AMP
TRACK AMP
VGA
2nd
3rd
S1
S2
S3
S4
S5
S6
S7
S8
REC EQ
Vcc
GND
ICC ADJ
SP(L)
A.FF
REC PB
C1013 47P
R1005 2.2K
R1004 270K
C1011 0.01
Q1003 DTC124TU
Q1004 DTC114WU
C1012 0.22
C1014 100P
R1006 10K
R1007 15K
R1010 1K
C1015 0.01
R1011 1K
C1016 0.01
L1001 100μ
101 COMMON
102 CH1
103 CH2
104 GND
105 SW 5V
106 SP(L)
107 A.PB FM
TO PRE/REC (Page 4-49)
CN1001
6 GND
5 A.REC FM
4 A.PB FM
3 H.REC ST(L)
2 A.FF
1 REC(L)
TO AUDIO CN303 (Page 4-20)
43 PRE/REC (FMA PRE/REC)

4.25 DECK TERMINAL, CASSETTE HOUSING AND CAPSTAN MDA SCHEMATIC DIAGRAMS

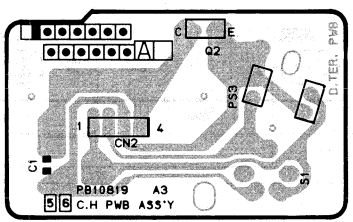


4.26 DECK TERMINAL, CASSETTE HOUSING AND A/C HEAD CIRCUIT BOARDS

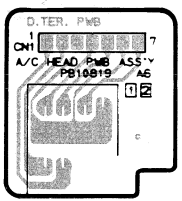
— DECK TERMINAL —



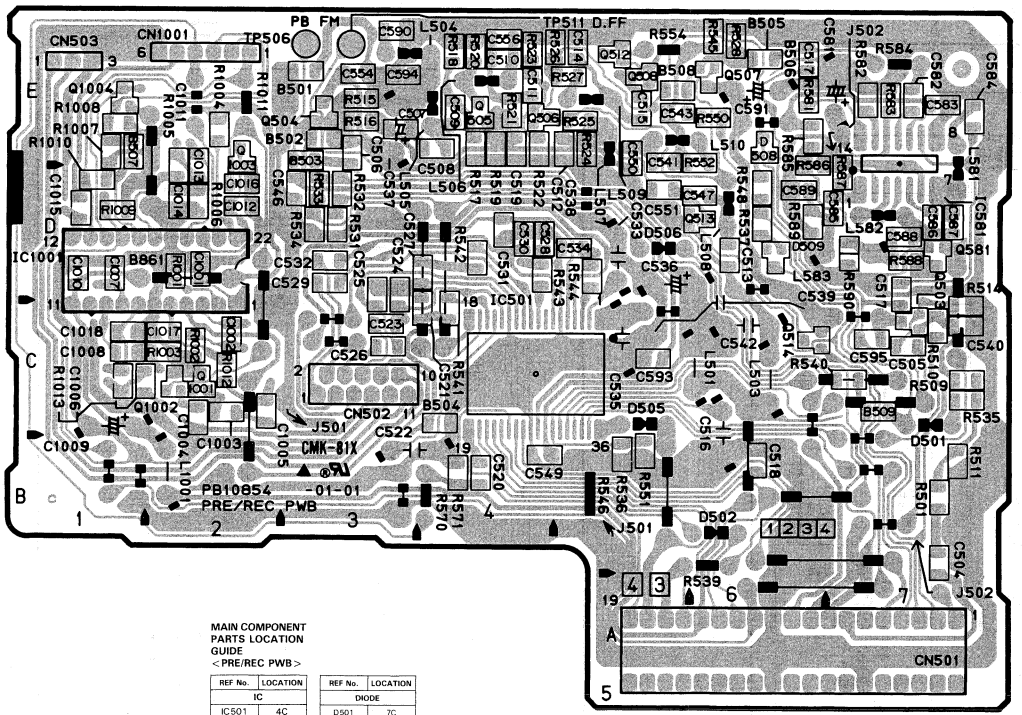
— CASSETTE HOUSING —



— A/C HEAD —



4.27 PRE/REC CIRCUIT BOARD



MAIN COMPONENT PARTS LOCATION GUIDE
<PRE/REC PWB>

REF No.	LOCATION
IC	
IC501	4C
TRANSISTOR	
Q503	7C
Q504	3E
Q505	4E
Q506	4E
Q507	6E
Q508	5E
Q512	5E
Q513	6D
Q514	6C

REF No.	LOCATION
DIODE	
D501	7C
D502	6B
D505	5C
D508	6E
CONNECTOR	
CN501	7A
CN502	3C
TEST POINT	
TP506	3E
TP511	3E

LEADLESS COMPONENT PARTS LOCATION GUIDE
<PRE/REC PWB>

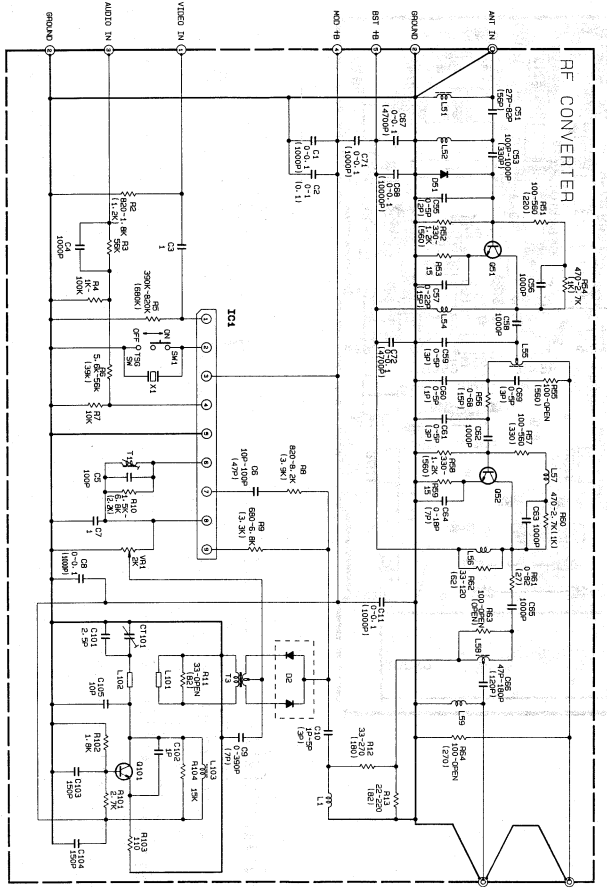
REF No.	LOCATION
IC	
IC501	4C
IC581	7E
TRANSISTOR	
Q503	7C
Q504	3E
Q505	4E
Q506	4E
Q507	6E
Q508	5E
Q512	5E
Q513	6D
Q514	6C
Q581	7D
Q1001	2C
Q1002	2C
Q1003	2E
Q1004	1E
DIODE	
D508	6E
D509	6D
RESISTOR	
R501	7B
R509	7C
R510	7C
R511	7B
R514	7D
R515	3E
R516	3E
R517	4E
R518	4E
R519	4E
R520	4E
R521	4E
R522	4E
R523	4E
R524	5E
R525	5E
R526	4E
R527	5E
R528	6E
R531	3D
R532	3D
R533	3D
R534	3D
R535	7C
R536	5B
R537	6D
R540	7C
R541	4C
R542	4D
R543	4D
R544	5D
R545	6E
R548	6D
R550	6E
R551	5B
R552	6E
R571	4B
R581	6E
R582	7E
R583	7E
R585	6E
R586	6E
R587	7D
R588	7D
R589	6D

REF No.	LOCATION
RESISTOR	
R590	7D
R1001	2D
R1002	2C
R1003	2C
R1004	2E
R1005	2E
R1006	2D
R1007	1E
R1008	1E
R1009	1D
R1010	1D
R1012	2C
R1013	1C
CAPACITOR	
C504	7B
C505	7C
C506	3E
C507	3E
C508	4E
C509	4E
C510	4E
C511	4E
C512	5E
C513	6D
C514	5E
C515	5E
C516	7D
C517	6E
C518	4B
C519	4E
C520	4B
C521	4C
C523	3C
C524	3D
C525	3D
C526	3C
C527	4D
C528	4D
C529	3D
C530	4D
C531	4D
C532	3D
C534	5D
C540	7C
C541	5E
C543	5E
C546	3D
C547	6D
C549	4B
C550	5E
C551	5D
C554	3E
C556	4E
C582	7E
C583	7E
C584	7E
C585	7D
C586	7D
C587	7D
C588	7D
C589	6D
C590	3E
C593	5C
C594	3E
C595	7C
C1001	2D
C1002	2C
C1003	2C
C1004	2C
C1005	2C

REF No.	LOCATION
CAPACITOR	
C1006	1C
C1007	1D
C1008	1C
C1010	1D
C1012	2D
C1013	2D
C1014	2D
C1015	1D
C1016	2D
C1017	2C
C1018	1C

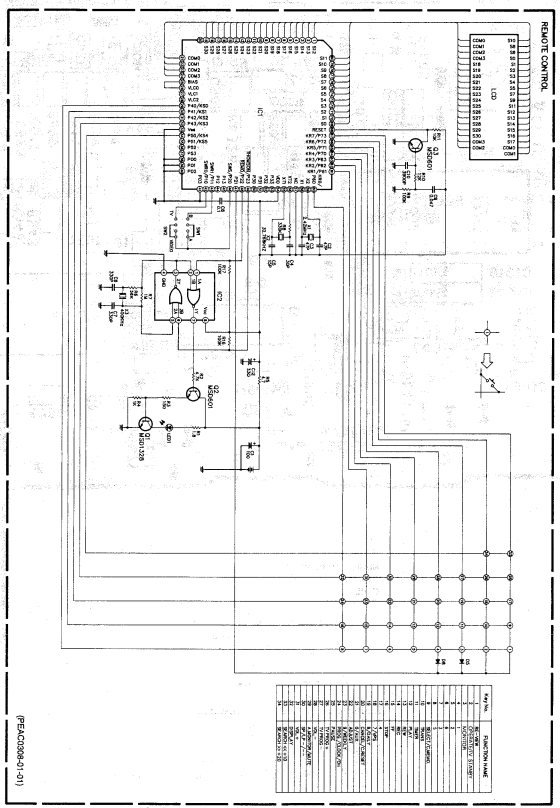
4.28 RF CONVERTER SCHEMATIC DIAGRAM

NOTE:
1. All parts shown in this schematic are critical for safety.
2. This schematic is only for reference.
   Avoid replacing individual parts.
   Replace the entire unit only.



4.29 REMOTE CONTROL SCHEMATIC DIAGRAM

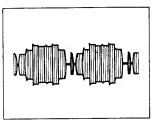
NOTE:
1. All parts shown in this schematic are critical for safety.
2. This schematic is only for reference.
   Avoid replacing individual parts.
   Replace the entire unit only.



4.30 WAVEFORMS

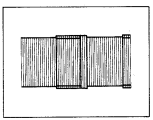
— VIDEO —

WF1 REC COLOR



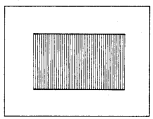
REC 0.23 Vp-p
5 mV/20 μsec/DIV

WF2 PB FM



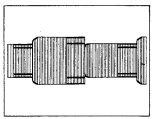
PB 0.34 Vp-p
10 mV/5 msec/DIV

WF3 REC FM



REC 0.65 Vp-p
20 mV/5 msec/DIV

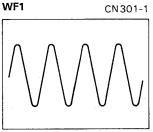
WF4 PB FM/COLOR



PB 0.4 Vp-p
10 mV/5 msec/DIV

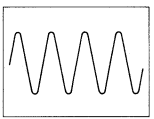
— AUDIO —

WF1 CN301-1



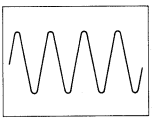
REC 44.0 Vp-p
1.0 V/10 μsec/DIV

WF2 TP333 ERASE



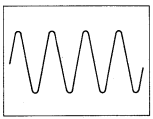
REC 36.0 Vp-p
1.0 V/10 μsec/DIV

WF3 IC301-12



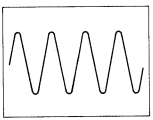
PB 1.5 Vp-p
5 mV/1 msec/DIV

WF4 AUX IN



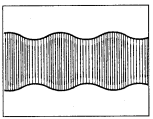
REC 0.3 Vp-p
10 mV/1 msec/DIV

WF5 AUDIO OUT



REC/PB 3.0 Vp-p
0.1 V/1 msec/DIV

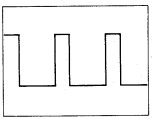
WF6 TP353 PB FM



PB 0.88 Vp-p
20 mV/0.5 msec/DIV

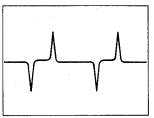
— SERVO —

WF1 IC401-29



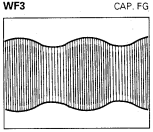
REC 6.0 Vp-p
0.1 V/10 msec/DIV

WF2 TP401 CTL PULSE



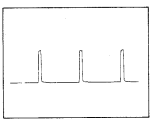
PB 2.5 Vp-p
50 mV/10 msec/DIV

WF3 CAP. FG



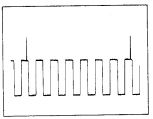
REC 3.0 Vp-p
0.1 V/10 msec/DIV

WF4 C. SYNC



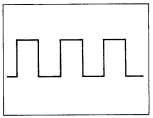
REC 4.2 Vp-p
0.1 V/20 μsec/DIV

WF5 D. PG/FG



REC/PB 4.2 Vp-p
0.1 V/5 msec/DIV

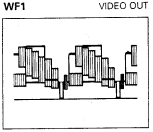
WF6 TP411 D. FF



REC/PB 5.0 Vp-p
0.2 V/10 msec/DIV

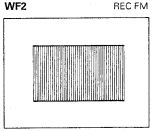
— VIDEO UNIT —

WF1 VIDEO OUT



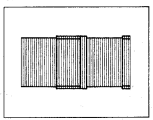
REC/PB 2.2 Vp-p
50 mV/20 μsec/DIV

WF2 REC FM



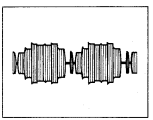
REC 0.68 Vp-p
20 mV/2 msec/DIV

WF3 PB FM



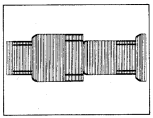
PB 0.44 Vp-p
10 mV/5 msec/DIV

WF4 REC COLOR



REC 0.22 Vp-p
5 mV/20 μsec/DIV

WF5 PB COLOR

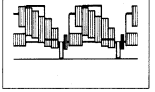


PB 0.36 Vp-p
10 mV/5 msec/DIV

WF6 IC2-16

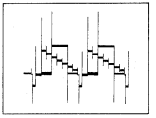
REC 1.3 Vp-p
50 mV/2 msec/DIV

WF7 IC2-14



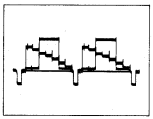
REC 1.1 Vp-p
20 mV/20 μsec/DIV

WF8 IC2-12



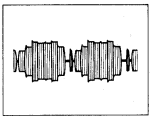
PB 0.32 Vp-p
10 mV/20 μsec/DIV

WF9 IC2-11



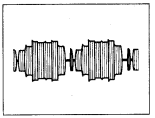
REC 0.52 Vp-p
20 mV/20 μsec/DIV

WF10 IC2-34



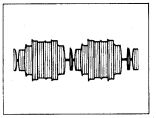
REC 0.4 Vp-p
10 mV/20 μsec/DIV

WF11 IC2-37



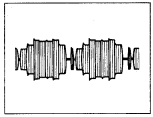
PB 0.8 Vp-p
20 mV/20 μsec/DIV

WF12 IC2-39



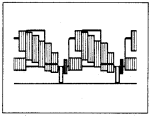
PB 0.8 Vp-p
20 mV/20 μsec/DIV

WF13 IC2-41



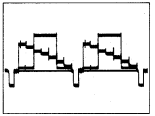
PB 0.08 Vp-p
5 mV/20 μsec/DIV

WF14 AUX IN



REC 1.1 Vp-p
20 mV/20 μsec/DIV

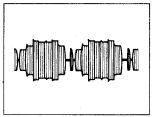
WF15 IC1-4



REC 0.3 Vp-p/PB 0.38 Vp-p
10 mV/20 μsec/DIV

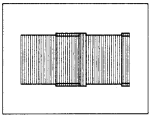
— PRE/REC —

WF1 REC COLOR



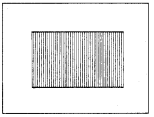
REC 0.23 Vp-p
5 mV/20 μsec/DIV

WF2 PB FM



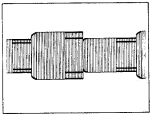
PB 0.42 Vp-p
10 mV/5 msec/DIV

WF3 REC FM



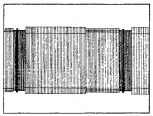
REC 0.65 Vp-p
20 mV/2 msec/DIV

WF4 TP506 PB FM/COLOR



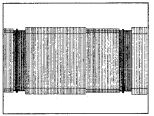
PB 0.6 Vp-p
10 mV/5 msec/DIV

WF5 REC FM/COLOR



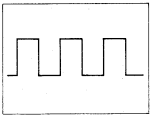
REC 0.22 Vp-p
10 mV/5 msec/DIV

WF6 PB FM



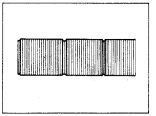
PB 0.5 Vp-p
10 mV/5 msec/DIV

WF7 TP511 D. FF



REC/PB 5.2 Vp-p
0.2 V/10 msec/DIV

WF8 SP COMMON



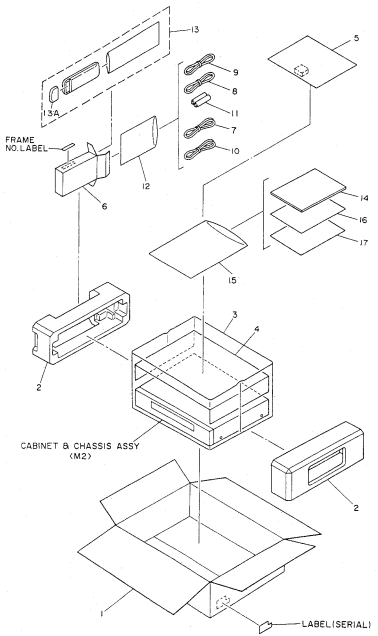
REC 1.6 Vp-p
50 mV/5 msec/DIV

SECTION 5
PARTS LIST

SAFETY PRECAUTION

Parts identified by the ⚠ symbol are critical for safety. Replace only with specified part numbers.

5.1 PACKING AND ACCESSORY ASSEMBLY <M1>

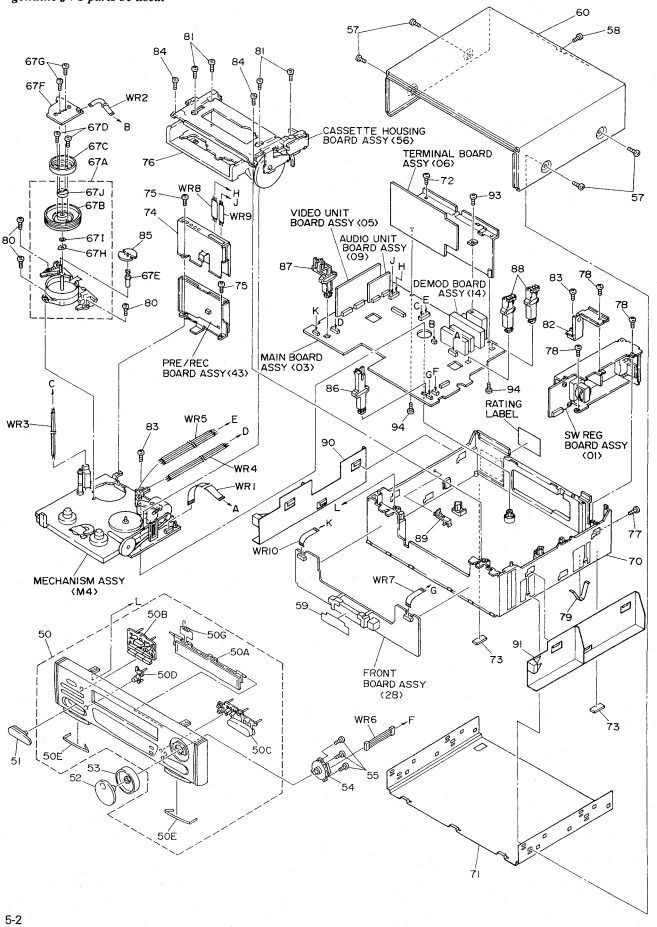


#⚠	REF No.	PART No.	PART NAME, DESCRIPTION
**********			
		PACKING AND ACCESSORY ASSEMBLY <M1>	
	1	PQ35070-3	PACKING CASE
	2	PQ35155A-1	CUSHION ASSY
	3	PQM30021-91	POLY BAG
	4	PQ41026-41	PROTECT SHEET
	5	PQ35190A-1	CUSHION ASSY
	6	PQ34715-5	CASE,ACCESSORY
⚠	7	QMP25G0-200	POWER CORD
⚠	8	PEAC0348	RF CABLE
	9	PU56142-5	PIN CORD ASSY
	10	PU59205-3	PIN JACK CABLE
	11	R6PRPA-2ST	BATTERY,X2
	12	QPGA020-02005	POLY BAG
⚠	13	PQ11534V-18	REMOTE CONTROLLER
	13A	PQ46063-2	CAP(BATTERY)
⚠	14	PU30425-1507	INSTRUCTIONS
	15	QPGA025-03505	POLY BAG
	16	BT-56002-1	SER.NET CARD
	17	BT-56001-1	WARRANTY CARD

5.2 CABINET AND CHASSIS ASSEMBLY <M2>

BEWARE OF BOGUS PARTS

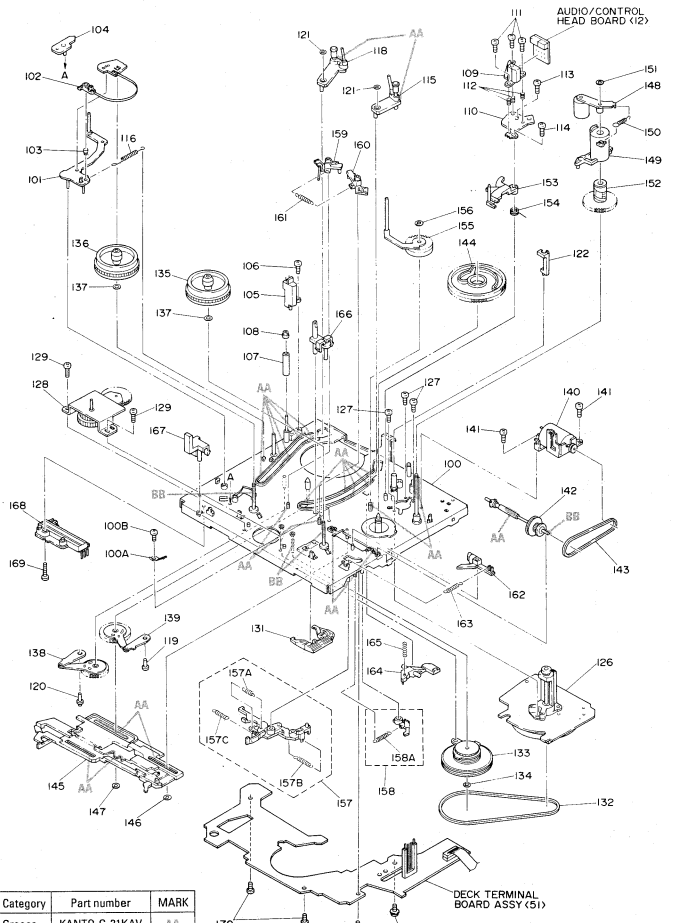
Parts that do not meet specifications may cause trouble in regard to safety and performance. We recommend that genuine JVC parts be used.


CASSETTE HOUSING BOARD ASSY (56)
TERMINAL BOARD ASSY (06)
VIDEO UNIT BOARD ASSY (05)
AUDIO UNIT BOARD ASSY (09)
DEMOD BOARD ASSY (14)
MAIN BOARD ASSY (03)
PRE/REC BOARD ASSY (43)
RATING LABEL
SW REG BOARD ASSY (01)
MECHANISM ASSY (M4)
FRONT BOARD ASSY (28)

CABINET AND CHASSIS ASSEMBLY <M2>

#△	REF No.	PART No.	PART NAME, DESCRIPTION
△	50	PQ11618E-1	FRONT PANEL ASSY
	50A	PQ21633-10	CASSETTE DOOR
	50B	PQ21637-5	BUTTON(1)
	50C	PQ21638-8	BUTTON(2)
	50D	PQ34915	BUTTON(3)
	50E	PQ46398-2	PLATE(FOOT),X2
	50G	PQ46414	TORSION SPRING
	51	PQ35007	COVER(JACK)
	52	PQ35133D	KNOB(JOG)ASSY
	53	PQ34917-4	KNOB(SHUTTLE)
	54	PEME0757-03	JOG SHUTTLE ASSY
	55	SDSF2608Z	SCREW,X3,JOG SHUTTLE ASSY
	57	PQ43827	SPECIAL SCREW,X4 TOP COVER
	58	SDSF3008M	SCREW,TOP COVER
	59	PQ46365	FILTER(FDP)
△	60	PQ11624	TOP COVER
	67A	PDM2232AE	DRUM SUB ASSEMBLY
	67B	PDM3353Q	UPPER DRUM ASSEMBLY
	67C	PDZ0141-2	ROTOR ASSEMBLY
	67D	SPSH2660Z	SCREW,X2
	67E	PDM4311A-1	ROLLER ASSEMBLY
△	67F	PDZ0141	STATOR ASSEMBLY
	67G	SPSP2606Z	SCREW,X2
	67H	PDM4343A	BRUSH ASSEMBLY
	67I	PDM4050-9	WASHER
	67J	PDM4345A	COLLAR ASSEMBLY
△	70	PQ11622-1-10	BOTTOM CHASSIS
△	71	PQ11625-2	BOTTOM COVER
	72	SDSF3010Z	SCREW,TERMINAL BOARD
	73	PQ43013-5	FOOT,X2
	74	PQ21513-1-1	SHIELD CASE,PRE/REC
	75	SDSG2606Z	SCREW,X2 PRE/REC
	76	PUS29672C-1	CASSETTE HOUSING ASSY
	77	SDSB3008M	SCREW,INLET
	78	SDSF3010Z	SCREW,X3 P.SUPPLY BOARD ASSY
	79	PQ34737	EARTH PLATE
	80	SPST2610Z	SCREW,X3 DRUM
	81	SDST2608Z	SCREW,X4 CASS.HOUSING
	82	PQ35010	BRACKET(M.DECK)
	83	PQ43831	SPECIAL SCREW,X2 MECHA
	84	SDSF3010Z	SCREW,X2 CASS.HOUSING
	85	PQ45160	INERTIA PLATE
	86	PEME0938	HOLDER (PWB),CASS.HOUSING
	87	PEME0942	HOLDER (MAIN),CASS.HOUSING
	88	PEME0943-01-01	HOLDER (REG.),X2 T.BRAKET
	89	PQ34691	PWB HOLDER
	90	PQ21647	INNER PIECE(L)
	91	PQ21648	INNER PIECE(R)
	93	SDST2605Z	SCREW,TERMINAL BOARD
	94	SDSF3008Z	SCREW,X2 TERMINAL BOARD
	WR1	PW30802-1832	FFC WIRE,D/T
	WR2	PW30803-0422	FFC,DRUM
	WR3	PW30701-24AAYY	WIRE,FE
	WR4	PW30702-40AAYY	WIRE,CTL
	WR5	PW30705-17AAYY	WIRE,AUDIO
	WR6	PW30218-0771613	WIRE,JOG
	WR7	PW30802-0913	FFC WIRE,M.CN802
	WR8	PW30101-H0HH883	PARALLEL WIRE,CN303 1-3
	WR9	PW30702-18AAYY	WIRE,CN303 4-6
	WR10	PW30802-0915	FFC WIRE

5.3 MECHANISM ASSEMBLY <M4>



Category	Part number	MARK
Grease	KANTO-G-31KAV	AA
Oil	COSMO-HV56	BB

NOTE: The section marked in AA and BB indicate lubrication and greasing areas.

#△ REF No.	PART No.	PART NAME, DESCRIPTION

****

MECHANISM ASSEMBLY <M4>

100	PQ20650K-33	MAIN DECK ASSEMBLY
100A	PQ43849	EARTH PLATE
100B	SPST2604Z	SCREW
101	PQ43497K	TENSION ARM ASSY
102	PQ45023A-1	TENSION BAND ASSY
103	PQ43503-1-4	ADJUST PIN
104	PQ44246	TENSION BAND BRACKET-3
105	PEHE0237	FULL ERASE HEAD
106	SDSF2614Z	SCREW,FULL ERASE HEAD
107	PQ43505-1-1	ROLLER
108	PQ43506	GUIDE POLE CAP
109	PEHE0182	AUDIO CONTROL HEAD
110	PQ43509	HEAD BASE
111	PQ43687A	SPECIAL SCREW,X3
112	PQM30002-192	COMPRESSION SPRING,X3
113	SPSF2608M	SCREW
114	SPSP2606Z	SCREW
115	PU61103-2-7	POLE BASE ASSY(TAKE-UP)
116	PQ43500	TENSION SPRING
118	PU61151-2-6	POLE BASE ASSY(SUPPLY)
119	PQ45895	STOPPER(T)
120	PQ45894	STOPPER(S)
121	PQM30017-41	SLIT WASHER,X2
122	PQ43675-1-5	TAPE GUARD
△ 126	PU61285	CAPSTAN MOTOR
127	SPSG2608Z	SCREW,X3
128	PU60618-1-3	IDLER GEAR UNIT
129	SPST2606Z	SCREW,X2
131	PQ43532B-4	CHANGE LEVER ASSEMBLY
132	PQM30003-24	TIMER BELT
133	PU60953-1-6	CLUTCH UNIT
134	PQM30017-8	SLIT WASHER
135	PQ46072A	REEL DISK ASSY,(TAKE-UP)
136	PU60859-1-4	REEL DISK (SUPPLY)
137	PQM30018-54	SPACER,X2
138	PQ43537B	LOADING ARM ASSY (SUPLLY)
139	PQ43542D-4	LOADING ARM ASSY(TAKE-UP)
140	PQ43676B-5	LOADING MOTOR ASSY
141	SPST2606Z	SCREW,X2
142	PQ43548A-2	WORM CLUTCH ASSY
143	PQM30003-23	BELT
144	PQ32413-1-6	CONTROL CAM
145	PQ43555C-10	PLATE ASSY
146	PQM30017-12	SLIT WASHER
147	PQM30017-8	SLIT WASHER
148	PQ43523C	PINCH ROLLER LEVER ASSY
149	PQ32415	PINCH ROLLER PRESS LEVER
150	PQM30001-233	TENSION SPRING
151	PQM30017-13	SLIT WASHER
152	PQ32416-2	PINCH ROLLER CAM
153	PQ43567A-13	GUIDE ARM ASSY
154	PQ43569-1-3	TORSION SPRING
155	PQ45073B	HALF LOADING GEAR ASSY

#△ REF No.	PART No.	PART NAME, DESCRIPTION
156	PQM30017-13	SLIT WASHER
157	PQ43575A-7	CANCELL LEVER ASSY
157A	PQM30001-273	TENSION SPRING
157B	PQM30001-237	TENSION SPRING
157C	PQM30001-274	TENSION SPRING
158	PQ43578A-2	HOOK ASSY
158A	PQM30001-238	TENSION SPRING
159	PQ43581D	MAIN BRAKE ASSY(SUPPLY)
160	PQ43582C	MAIN BRAKE ASSY(TAKE UP)
161	PQM30001-251	TENSION SPRING
162	PQ43583A-3	SUB BRAKE ASSY (TAKE UP)
163	PQM30001-235	TENSION SPRING
164	PQ43584A-5	CAPSTAN BRAKE ASSY
165	PQM30002-201	COMPRESSION SPRING
166	PQ21546	LED PRISM
167	PU61281	REC SAFETY SWITCH
168	PU60622-1-2	SLIDE SWITCH
169	SDSF2614Z	SCREW
170	SDST2616Z	SCREW,X2
171	GPSF2608Z	SCREW,X2

5.4 ELECTRICAL PARTS LIST

#△ REF No.	PART No.	PART NAME, DESCRIPTION	
**********			
		SW.REG BOARD ASSEMBLY <01>	
	PWBA	PB20651H	SW.REGURATOR BOARD ASSY
	Q1	2SC4517A-LF619	TRANSISTOR
	Q2	2SC3616(MLK)	TRANSISTOR
	Q31	2SC1740S(RS)	TRANSISTOR
	D1	10E6-F2	DIODE
	D2	10E6-F2	DIODE
	D3	10E6-F2	DIODE
	D4	10E6-F2	DIODE
	D6	1SS133	DIODE
		or MA165	DIODE
		or 1N4148M	DIODE
	D7	UZ27BSB	ZENER DIODE
		or RD27ES-T1B2	DIODE
		or MTZ27BT-77	ZENER DIODE
	D8	1SS133	DIODE
		or MA165	DIODE
		or 1N4148M	DIODE
	D9	AU01	FR DIODE
		or ERA18-04-T2	FR DIODE
		or 1SR153-400	FR DIODE
	D10	AU01	FR DIODE
		or ERA18-04-T2	FR DIODE
		or 1SR153-400	FR DIODE
	D31	AU01Z	FR DIODE
		or ERA18-02-T2	FR DIODE
		or 1SR153-200	FR DIODE
	D32	RL2Z-LFB2	FR DIODE
	D33	RL2Z-LFB2	FR DIODE
	D35	AU01Z	FR DIODE
		or ERA18-02-T2	FR DIODE
	D36	RK14LF-B2	BARRIER DIODE
		or 21DQ04	BARRIER DIODE
	D37	AU01Z	FR DIODE
		or ERA18-02-T2	FR DIODE
		or 1SR153-200	FR DIODE
	D38	1SS133	DIODE
		or MA165	DIODE
	D40	RD15ES-T1B1	ZENER DIODE
		or UZ15BSA	DIODE
	D41	RD6.2ES-T1B3	ZENER DIODE
		or UZ6.2BSC	ZENER DIODE
		or MTZV6.2C	ZENER DIODE
	D42	RD30ES-T1B1	ZENER DIODE
		or MTZ30AT-77	ZENER DIODE
		or UZ30BSA	ZENER DIODE
	D43	1SS133	DIODE
		or MA165	DIODE
	R4	QRD161J-224	RESISTOR 220kΩ,1/6W
	R5	QRD161J-224	RESISTOR 220kΩ,1/6W
	R8	QRX014J-R39Z	MF RESISTOR 0.39Ω,1W
	R9	QRG029J-683G	OMF RESISTOR 68kΩ,2W
	R10	QRG029J-331A	OMF RESISTOR 330Ω,2W
	R11	QRD161J-122	RESISTOR 1.2kΩ,1/6W
	R14	QRD161J-681	RESISTOR 680Ω,1/6W
	R15	QRD161J-683	RESISTOR 68kΩ,1/6W
	R31	QRG01DJ-110X	MF RESISTOR 11Ω,1W
△	R32	QRZ0077-470	FUSIBLE RESISTOR 47Ω,1/4W
△	R33	QRG02DJ-222	OMF RESISTOR 2.2kΩ,2W

#△ REF No.	PART No.	PART NAME, DESCRIPTION	
	R34	QRV144F-4870AY	CMF RESISTOR 487Ω,1/4W
	R35	QRD161J-471	RESISTOR 470Ω,1/6W
	R36	QRV144F-3740AY	CMF RESISTOR 374Ω,1/4W
	R37	QRD161J-122	RESISTOR 1.2kΩ,1/6W
△	C2	QFZ9022-683	F CAPACITOR 0.068μF
△	C3	QFZ9022-333	F CAPACITOR 0.033μF
△	C6	QCZ9016-221K	CAPACITOR 220pF
△	C8	QCZ9016-221K	CAPACITOR 220pF
△	C9	QCZ9026-222	CAPACITOR 0.0022μF
	C10	PECA0793-686	E CAPACITOR 68μF,400V
	C12	QETC1HM-225	E CAPACITOR 2.2μF,50V
	C13	QCZ0212-472	CAPACITOR 0.0047μF,1kV
	C16	QFLA1HJ-103Z	F CAPACITOR 0.01μF,50V
	C20	QCZ0136-101Z	CAPACITOR 100pF,1kV
	C21	QFV11HJ-104AZ	F CAPACITOR 0.1μF,50V
	C31	QETC1JM-226	E CAPACITOR 22μF,63V
	C32	QEGB1CM-477	E CAPACITOR 470μF,16V
	C33	QEGB1AM-477	E CAPACITOR 470μF,10V
	C34	QETC1HM-226	E CAPACITOR 22μF,50V
	C35	QEM91AM-107	E CAPACITOR 100μF,10V
	C36	QETB1AM-477	E CAPACITOR 470μF,10V
	C37	QETB1EM-227	E CAPACITOR 220μF,25V
	C38	QETC1HM-474	E CAPACITOR 0.47μF,50V
	C39	QFLA1HJ-103Z	F CAPACITOR 0.01μF,50V
	C40	QEGB1EM-227	E CAPACITOR 220μF,25V
	C42	QETB1CM-477	E CAPACITOR 470μF,16V
	L31	PELN0687	COIL
	L32	PELN0687	COIL
	L33	PELN0687	COIL
△	PC1	PS2561L-1(WL)	PH COUPLER
△	T1	PELN0987-02	SW TRANS
△	AO1	PEMC1067	AC INLET
△	BKT1	PQ21649-1-6	TRANS BRACKET
△	FC1	PEMC0965	FUSE CLIP,F1
△	FC2	PEMC0965	FUSE CLIP,F1
△	HS1	PQ45788-1-1	HEAT SINK,Q1
△	LF2	PELN0876	LINE FILTER
	SCW1	SDST3006Z	SCREW,X3 B0ARD-BKT
	SCW2	SDSB3008M	SCREW,INLET-BKT
	SCW3	SDST3006Z	SCREW,Q1
△	SLD1	PQ35100-1-1	SHIELD COVER
	CN1	PEMC0978-111	CONNECTOR,(1-11) MAIN
△	CP1	ICP-N20	CIRCUIT PROTECTOR
△	F1	QMF51E2-1R25	FUSE T1.2A

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MAIN BOARD ASSEMBLY <03>

PWBA1	PB10838E-02	MAIN BOARD ASSY
SPC1	PQM30029-44	SPACER
JA704	PU60612	MINI JACK,R.PAUSE
CN201	PEMC1055-017	CONNECTOR,(3-19) PRE/REC
CN301	PU60910-6	CONNECTOR,(1-6) A/C HEAD
CN303	PU60910-6	CONNECTOR,(1-6) PRE/REC
CN401	PU60910-3	CONNECTOR,(1-3) A/C HEAD
CN402	PEMC0915-004	CONNECTOR,(1-4) DRUM MOTOR
CN601	PEMC0915-018	FFC CONNECTOR,(1-18) DECK TERMINAL

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	CN602	PU59555-7	CONNECTOR,(1-7) JOG/SHATTLE	
	CN711	PEMC0969-105	CONNECTOR,(1-5) TERMINAL	
	CN712	PEMC0969-111	CONNECTOR,(2-12) TERMINAL	
	CN713	PEMC0969-111	CONNECTOR,(2-12) TERMINAL	
	CN801	PEMC0977-011	CONNECTOR,(1-11) SW.REG	
	CN802	PEMC0915-009	FFC CONNECTOR,(1-9) FRONT	
	CN810	PEMC0915-009	FFC CONNECTOR,(1-9) FRONT	

– TUNER SECTION –

⚠	RF1	PERF0110	RF CONVERTER	
⚠	TNR1	PERF0139-01-01	UHF/VHF TUNER	
⚠	TNR2	PERF0142-02	IF UNIT	
	Q1	DTC114EU	TRANSISTOR	
	Q2	2SB810H,J	TRANSISTOR	
	Q3	2SD1450S,T	TRANSISTOR	
	Q12	2SK381(C)	FE TRANSISTOR	
	Q13	DTC144EU	TRANSISTOR	
	Q14	2SC4081(RS)	TRANSISTOR	
	Q15	2SA1576(RS)	TRANSISTOR	
	Q16	2SC4081(RS)	TRANSISTOR	
	D1	MTZ33CT-77	ZENER DIODE	
		or UZ33BSC	DIODE	
	D2	1SS133	DIODE	
		or 1N4148M	DIODE	
		or MA165	DIODE	
	D3	1SS133	DIODE	
		or MA165	DIODE	
		or 1N4148M	DIODE	
	D4	1SS133	DIODE	
		or MA165	DIODE	
		or 1N4148M	DIODE	
	R1	QRSA08J-152YN	RESISTOR	1.5kΩ,1/10W
	R2	QRSA08J-153YN	RESISTOR	15kΩ,1/10W
	R3	QRSA08J-331YN	RESISTOR	330Ω,1/10W
	R30	QRSA08J-105YN	RESISTOR	1MΩ,1/10W
	R31	QRSA08J-683YN	RESISTOR	68kΩ,1/10W
	R32	QRSA08J-393YN	RESISTOR	39kΩ,1/10W
	R33	QRSA08J-821YN	RESISTOR	820Ω,1/10W
	R34	QRD161J-222	RESISTOR	2.2kΩ,1/6W
	R35	QRSA08J-223YN	RESISTOR	22kΩ,1/10W
	R36	QRSA08J-153YN	RESISTOR	15kΩ,1/10W
	R37	QRD161J-103	RESISTOR	10kΩ,1/6W
	R38	QRSA08J-682YN	RESISTOR	6.8kΩ,1/10W
	R39	QRSA08J-123YN	RESISTOR	12kΩ,1/10W
	R42	QRSA08J-681YN	RESISTOR	680Ω,1/10W
	R43	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
	C1	QETC1CM-336	E CAPACITOR	33μF,16V
	C6	QEK61CM-106	E CAPACITOR	10μF,16V
	C7	QETC1HM-106	E CAPACITOR	10μF,50V
	C8	QCYA1HK-102	CAPACITOR	0.001μF,50V
	C9	QCYA1HK-102	CAPACITOR	0.001μF,50V
	C10	QCYA1HK-471	CAPACITOR	470pF,50V
	C13	QCYA1HK-222	CAPACITOR	0.0022μF,50V
	C14	QCFA1HZ-223	CAPACITOR	0.022μF,50V
	C15	QETC1HM-474	E CAPACITOR	0.47μF,50V
	C19	QCXB1CM-222	CAPACITOR	0.0022μF,16V
	L1	PU59152-6R8J	COIL	6.8μH
	T1	PELN0806	COIL	
	WR1	PW30402-BB14M	COAXIAL CORD	

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	

– VIDEO SECTION –

	D202	1SS133	DIODE	
		or 1N4148M	DIODE	
		or MA165	DIODE	
	R209	QRSA08J-562YN	RESISTOR	5.6kΩ,1/10W
	R210	QRSA08J-562YN	RESISTOR	5.6kΩ,1/10W
	R214	QRSA08J-222YN	RESISTOR	2.2kΩ,1/10W
	R216	QRSA08J-223YN	RESISTOR	22kΩ,1/10W
	R221	QRSA08J-561YN	RESISTOR	560Ω,1/10W
	R222	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
	C205	QEP61EM-475	NP E CAPACITOR	4.7μF,25V
	C207	QCFA1HZ-103	CAPACITOR	0.01μF,50V
	C208	QCFA1HZ-103	CAPACITOR	0.01μF,50V
	C209	QCVB1CN-103	CAPACITOR	0.01μF,16V

– AUDIO SECTION –

	IC301	BA7795LS	IC	
		or XRA7795LS	IC	
	IC302	BA15218	IC	
		or XRA15218	IC	
	IC303	BA6138	IC	
	IC304	BA15218	IC	
		or XRA15218	IC	
	Q301	2SD1468S(RS)	TRANSISTOR	
	Q303	DTA114EU	TRANSISTOR	
	Q304	2SC1740S(RS)	TRANSISTOR	
		or 2SC3199(GB)-TJK	TRANSISTOR	
	Q305	2SC1740S(RS)	TRANSISTOR	
		or 2SC3199(GB)-TJK	TRANSISTOR	
	Q306	2SA933S(QR)	TRANSISTOR	
	Q307	2SA933S(QR)	TRANSISTOR	
	Q308	2SC1740S(QR)	TRANSISTOR	
		or 2SC3199(GB)-TJK	TRANSISTOR	
	R301	QRSA08J-331YN	RESISTOR	330Ω,1/10W
	R303	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
	R304	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
	R307	QRSA08J-682YN	RESISTOR	6.8kΩ,1/10W
	R308	QRSA08J-182YN	RESISTOR	1.8kΩ,1/10W
	R309	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
	R310	QRSA08J-183YN	RESISTOR	18kΩ,1/10W
	R311	QRSA08J-183YN	RESISTOR	18kΩ,1/10W
	R312	QRSA08J-183YN	RESISTOR	18kΩ,1/10W
	R313	QRSA08J-183YN	RESISTOR	18kΩ,1/10W
	R314	QRSA08J-393YN	RESISTOR	39kΩ,1/10W
	R315	QRSA08J-393YN	RESISTOR	39kΩ,1/10W
	R316	QRSA08J-393YN	RESISTOR	39kΩ,1/10W
	R317	QRSA08J-393YN	RESISTOR	39kΩ,1/10W
	R318	QRSA08J-122YN	RESISTOR	1.2kΩ,1/10W
	R319	QRSA08J-122YN	RESISTOR	1.2kΩ,1/10W
	R320	QRSA08J-562YN	RESISTOR	5.6kΩ,1/10W
	R321	QRSA08J-562YN	RESISTOR	5.6kΩ,1/10W
	R322	QRSA08J-331YN	RESISTOR	330Ω,1/10W
	R323	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
	R324	QRSA08J-331YN	RESISTOR	330Ω,1/10W
	R325	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
	R326	QRSA08J-122YN	RESISTOR	1.2kΩ,1/10W
	R327	QRSA08J-122YN	RESISTOR	1.2kΩ,1/10W
	R328	QRSA08J-331YN	RESISTOR	330Ω,1/10W
	R329	QRSA08J-331YN	RESISTOR	330Ω,1/10W
	R332	QRD161J-223	RESISTOR	22kΩ,1/6W

#△	REF No.	PART No.	PART NAME, DESCRIPTION	
	R333	QRD161J-473	RESISTOR	47kΩ,1/6W
	R334	QRSA08J-682YN	RESISTOR	6.8kΩ,1/10W
	R335	QRSA08J-273YN	RESISTOR	27kΩ,1/10W
	R336	QRSA08J-682YN	RESISTOR	6.8kΩ,1/10W
	R337	QRSA08J-123YN	RESISTOR	12kΩ,1/10W
	R338	QRSA08J-3R3YN	RESISTOR	3.3Ω,1/10W
△	R339	QRD161J-820	RESISTOR	82Ω,1/6W
	R340	QRSA08J-393YN	RESISTOR	39kΩ,1/10W
	R341	QRD161J-102	RESISTOR	1kΩ,1/6W
	R344	QRD161J-122	RESISTOR	1.2kΩ,1/6W
	R347	QRSA08J-153YN	RESISTOR	15kΩ,1/10W
	R348	QRSA08J-271YN	RESISTOR	270Ω,1/10W
	R349	QRSA08J-561YN	RESISTOR	560Ω,1/10W
	R350	QRSA08J-223YN	RESISTOR	22kΩ,1/10W
	R351	QRSA08J-820YN	RESISTOR	82Ω,1/10W
	R352	QRSA08J-274YN	RESISTOR	270kΩ,1/10W
	R353	QRSA08J-822YN	RESISTOR	8.2kΩ,1/10W
	R354	QRSA08J-682YN	RESISTOR	6.8kΩ,1/10W
	R355	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
	R356	QRSA08J-682YN	RESISTOR	6.8kΩ,1/10W
	R360	QRD161J-332	RESISTOR	3.3kΩ,1/6W
	R361	QRD161J-101	RESISTOR	100Ω,1/6W
	R362	QRSA08J-153YN	RESISTOR	15kΩ,1/10W
	R363	QRD161J-153	RESISTOR	15kΩ,1/6W
	R364	QRSA08J-473YN	RESISTOR	47kΩ,1/10W
	R365	QRSA08J-333YN	RESISTOR	33kΩ,1/10W
	R366	QRSA08J-473YN	RESISTOR	47kΩ,1/10W
	R367	QRSA08J-333YN	RESISTOR	33kΩ,1/10W
△	R370	QRSA08J-221YN	RESISTOR	220Ω,1/10W
	R379	QRSA08J-104YN	RESISTOR	100kΩ,1/10W
	R380	QRSA08J-104YN	RESISTOR	100kΩ,1/10W
	R381	QRSA08J-682YN	RESISTOR	6.8kΩ,1/10W
	R382	QRSA08J-682YN	RESISTOR	6.8kΩ,1/10W
	R383	QRSA08J-432YN	RESISTOR	4.3kΩ,1/10W
	R384	QRSA08J-432YN	RESISTOR	4.3kΩ,1/10W
	R385	QRD161J-102	RESISTOR	1kΩ,1/6W
	R386	QRD161J-102	RESISTOR	1kΩ,1/6W
	R387	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
	R388	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
	R389	QRSA08J-183YN	RESISTOR	18kΩ,1/10W
	R390	QRSA08J-183YN	RESISTOR	18kΩ,1/10W
	R391	QRSA08J-393YN	RESISTOR	39kΩ,1/10W
	R392	QRSA08J-393YN	RESISTOR	39kΩ,1/10W
	R398	QRSA08J-183YN	RESISTOR	18kΩ,1/10W
	R399	QRSA08J-183YN	RESISTOR	18kΩ,1/10W
	C301	QETC0JM-476	E CAPACITOR	47μF,6.3V
	C302	QETC0JM-476	E CAPACITOR	47μF,6.3V
	C303	QETC1CM-476	E CAPACITOR	47μF,16V
	C306	QEK61HM-105	E CAPACITOR	1μF,50V
	C307	QER61AM-476	E CAPACITOR	47μF,10V
	C308	QETC1AM-476	E CAPACITOR	47μF,10V
	C309	QEK61CM-106	E CAPACITOR	10μF,16V
	C310	QEK61CM-106	E CAPACITOR	10μF,16V
	C311	QER61CM-106	E CAPACITOR	10μF,16V
	C312	QEK61CM-106	E CAPACITOR	10μF,16V
	C315	QEK61EM-476	E CAPACITOR	47μF,25V
	C316	QETC1HM-105	E CAPACITOR	1μF,50V
	C317	QETC1HM-105	E CAPACITOR	1μF,50V
	C318	QETC1AM-476	E CAPACITOR	47μF,10V
	C319	QETC1AM-476	E CAPACITOR	47μF,10V
	C321	QCYA1HK-331	CAPACITOR	330pF,50V
	C322	QFV21HJ-823	F CAPACITOR	0.082μF,50V

#△	REF No.	PART No.	PART NAME, DESCRIPTION	
	C323	QETC1CM-106	E CAPACITOR	10μF,16V
	C324	QCYA1HK-472	CAPACITOR	0.0047μF,50V
	C325	QCYA1EK-223	CAPACITOR	0.022μF,25V
	C326	QCYA1HK-222	CAPACITOR	0.0022μF,50V
	C327	QEK61CM-476	E CAPACITOR	47μF,16V
	C328	QCC11EJ-153	CAPACITOR	0.015μF,25V
	C329	QER61HM-105	E CAPACITOR	1μF,50V
	C330	QCC11EJ-223	CAPACITOR	0.022μF,25V
	C332	QCYA1HK-681	CAPACITOR	680pF,50V
	C333	QER61EM-475	E CAPACITOR	4.7μF,25V
	C334	QER61AM-336	E CAPACITOR	33μF,10V
	C335	QCYA1HK-123	CAPACITOR	0.012μF,50V
	C336	QCYA1EK-223	CAPACITOR	0.022μF,25V
	C338	QCYA1EK-223	CAPACITOR	0.022μF,25V
	C340	QEK61CM-106	E CAPACITOR	10μF,16V
	C345	QCFA1EZ-224	CAPACITOR	0.22μF,25V
	C346	QCFA1EZ-224	CAPACITOR	0.22μF,25V
	C349	QEK61HM-105	E CAPACITOR	1μF,50V
	C350	QEK61HM-105	E CAPACITOR	1μF,50V
	C351	QER61CM-476	E CAPACITOR	47μF,16V
	C352	QEK61AM-336	E CAPACITOR	33μF,10V
	C353	QEK61AM-336	E CAPACITOR	33μF,10V
	C354	QEK61CM-106	E CAPACITOR	10μF,16V
	C355	QETC1CM-106	E CAPACITOR	10μF,16V
	L301	PU58308-123J	COIL	12mH
△	T301	PELN0832	OSC TRANSFORMER	

– SERVO SECTION –

	IC401	JCP0039	IC	
		or HD49780NT	IC	
		or HD49780ANT	IC	
		or JCP0039-2	IC	
	D401	1SS133	DIODE	
		or MA165	DIODE	
		or 1N4148M	DIODE	
	D402	1SS133	DIODE	
		or 1N4148M	DIODE	
		or MA165	DIODE	
	D403	1SS133	DIODE	
		or MA165	DIODE	
		or 1N4148M	DIODE	
	R401	QRSA08J-561YN	RESISTOR	560Ω,1/10W
	R402	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
	R403	QRSA08J-105YN	RESISTOR	1MΩ,1/10W
	R404	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
	R405	QRSA08J-474YN	RESISTOR	470kΩ,1/10W
	R406	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
	R407	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
	R408	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
	R409	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
	R410	QRSA08J-223YN	RESISTOR	22kΩ,1/10W
	R411	QRSA08J-225YN	RESISTOR	2.2MΩ,1/10W
	R412	QRSA08J-473YN	RESISTOR	47kΩ,1/10W
	R413	QRSA08J-222YN	RESISTOR	2.2kΩ,1/10W
	R414	QRSA08J-122YN	RESISTOR	1.2kΩ,1/10W
	R415	QRSA08J-332YN	RESISTOR	3.3kΩ,1/10W
	R416	QRSA08J-223YN	RESISTOR	22kΩ,1/10W
	R417	QRSA08J-223YN	RESISTOR	22kΩ,1/10W
	R418	QRSA08J-105YN	RESISTOR	1MΩ,1/10W
	R419	QRSA08J-273YN	RESISTOR	27kΩ,1/10W
	R421	QRSA08J-274YN	RESISTOR	270kΩ,1/10W

#△	REF No.	PART No.	PART NAME, DESCRIPTION	
	R423	QRSA08J-105YN	RESISTOR	1MΩ,1/10W
	R424	QRSA08J-273YN	RESISTOR	27kΩ,1/10W
	R429	QRSA08J-393YN	RESISTOR	39kΩ,1/10W
	R430	QRSA08J-335YN	RESISTOR	3.3MΩ,1/10W
	R431	QRSA08J-274YN	RESISTOR	270kΩ,1/10W
	R432	QRSA08J-822YN	RESISTOR	8.2kΩ,1/10W
	R436	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
	R438	QRSA08J-104YN	RESISTOR	100kΩ,1/10W
	R439	QRSA08J-153YN	RESISTOR	15kΩ,1/10W
	R440	QRSA08J-561YN	RESISTOR	560Ω,1/10W
	C401	QCYA1HK-102	CAPACITOR	0.001μF,50V
	C402	QETC1EM-226	E CAPACITOR	22μF,25V
	C403	QETC1EM-226	E CAPACITOR	22μF,25V
	C404	QCSA1HJ-181	CAPACITOR	180pF,50V
	C405	QCYA1HK-102	CAPACITOR	0.001μF,50V
	C407	QCYA1HK-102	CAPACITOR	0.001μF,50V
	C408	QFV11HJ-563	F CAPACITOR	0.056μF,50V
	C409	QCYA1HK-102	CAPACITOR	0.001μF,50V
	C410	QCYA1EK-103	CAPACITOR	0.01μF,25V
	C411	QCYA1EK-103	CAPACITOR	0.01μF,25V
	C412	QETA1HM-106	E CAPACITOR	10μF,50V
	C413	QFV11HJ-224	F CAPACITOR	0.22μF,50V
	C414	QCYA1EK-223	CAPACITOR	0.022μF,25V
	C415	QEK61HM-475	E CAPACITOR	4.7μF,50V
	C416	QETC1HM-475	E CAPACITOR	4.7μF,50V
	C417	QETC1HM-106	E CAPACITOR	10μF,50V
	C418	QETC1HM-106	E CAPACITOR	10μF,50V
	C419	QCYA1EK-223	CAPACITOR	0.022μF,25V
	C420	QFV11HJ-334	F CAPACITOR	0.33μF,50V
	C421	QCSA1HJ-471	CAPACITOR	470pF,50V
	C422	QCBB1HJ-102	CAPACITOR	0.001μF,50V
△	CP401	ICP-N15	CIRCUIT PROTECTOR	

– SYSTEM CONTROL SECTION –

IC601	HD6433927A99F	IC	
IC602	AT93C56-10PC	IC	
	or S-2922AI10	IC	
	or 93LC56/P	IC	
	or 93LC56B/P	IC	
	or 93C56/P	IC	
IC603	MM1255XF	IC	
IC604	M50253P	IC	
	or BU2090	IC	
Q601	DTC124EU	TRANSISTOR	
Q602	DTC124EU	TRANSISTOR	
Q603	DTC124EU	TRANSISTOR	
Q605	DTC143EU	TRANSISTOR	
Q610	DTC114TU	TRANSISTOR	
Q611	2SB1256	TRANSISTOR	
Q612	DTC124EU	TRANSISTOR	
D601	11ES2	DIODE	
D602	11ES2	DIODE	
D605	1SS133	DIODE	
	or 1N4148M	DIODE	
	or MA165	DIODE	
D606	1SS133	DIODE	
	or MA165	DIODE	
	or 1N4148M	DIODE	
D607	1SS133	DIODE	
	or 1N4148M	DIODE	
	or MA165	DIODE	

#△	REF No.	PART No.	PART NAME, DESCRIPTION	
	D610	1SS133	DIODE	
		or 1N4148M	DIODE	
		or MA165	DIODE	
	D611	1SS133	DIODE	
		or 1N4148M	DIODE	
		or MA165	DIODE	
	D612	1SS133	DIODE	
		or MA165	DIODE	
		or 1N4148M	DIODE	
	D670	1SS133	DIODE	
		or 1N4148M	DIODE	
		or MA165	DIODE	
	D671	1SS133	DIODE	
		or 1N4148M	DIODE	
		or MA165	DIODE	
	D672	11ES2	DIODE	
	D673	11ES2	DIODE	
	D700	1SS133	DIODE	
		or 1N4148M	DIODE	
		or MA165	DIODE	
	R601	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
	R602	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
	R604	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
	R605	QRSA08J-152YN	RESISTOR	1.5kΩ,1/10W
	R606	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
	R607	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
	R608	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
	R609	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
	R610	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
	R611	QRSA08J-271YN	RESISTOR	270Ω,1/10W
	R612	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
	R613	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
	R614	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
	R615	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
	R616	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
	R617	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
	R618	QRSA08J-332YN	RESISTOR	3.3kΩ,1/10W
	R619	QRSA08J-332YN	RESISTOR	3.3kΩ,1/10W
	R621	QRD161J-472	RESISTOR	4.7kΩ,1/6W
	R622	QRD161J-472	RESISTOR	4.7kΩ,1/6W
	R623	QRD161J-472	RESISTOR	4.7kΩ,1/6W
	R624	QRD161J-472	RESISTOR	4.7kΩ,1/6W
	R625	QRD161J-102	RESISTOR	1kΩ,1/6W
	R626	QRD161J-472	RESISTOR	4.7kΩ,1/6W
	R627	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
	R628	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
	R629	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
	R630	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
	R631	QRD161J-102	RESISTOR	1kΩ,1/6W
	R632	QRD161J-102	RESISTOR	1kΩ,1/6W
	R633	QRD161J-102	RESISTOR	1kΩ,1/6W
	R634	QRD161J-272	RESISTOR	2.7kΩ,1/6W
	R635	QRD161J-102	RESISTOR	1kΩ,1/6W
	R636	QRD161J-472	RESISTOR	4.7kΩ,1/6W
	R637	QRSA08J-152YN	RESISTOR	1.5kΩ,1/10W
	R638	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
	R639	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
	R640	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
	R641	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
	R642	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
	R643	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
	R644	QRD161J-472	RESISTOR	4.7kΩ,1/6W

#△	REF No.	PART No.	PART NAME, DESCRIPTION	
	R646	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
	R647	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
	R648	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
	R649	QRD161J-472	RESISTOR	4.7kΩ,1/6W
	R650	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
	R651	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
	R652	QRSA08J-104YN	RESISTOR	100kΩ,1/10W
	R653	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
	R654	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
	R655	QRD161J-103	RESISTOR	10kΩ,1/6W
	R656	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
	R658	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
	R659	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
	R660	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
	R661	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
	R662	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
	R663	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
	R664	QRSA08J-105YN	RESISTOR	1MΩ,1/10W
	R665	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
	R666	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
	R667	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
	R668	QRSA08J-123YN	RESISTOR	12kΩ,1/10W
	R669	QRSA08J-333YN	RESISTOR	33kΩ,1/10W
	R670	QRD161J-103	RESISTOR	10kΩ,1/6W
	R671	QRD161J-333	RESISTOR	33kΩ,1/6W
	R672	QRD161J-153	RESISTOR	15kΩ,1/6W
	R673	QRD161J-103	RESISTOR	10kΩ,1/6W
	R674	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
	R676	QRSA08J-104YN	RESISTOR	100kΩ,1/10W
	R677	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
	R678	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
	R679	QRSA08J-222YN	RESISTOR	2.2kΩ,1/10W
	R680	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
	R681	QRSA08J-333YN	RESISTOR	33kΩ,1/10W
	R682	QRSA08J-473YN	RESISTOR	47kΩ,1/10W
	R683	QRSA08J-333YN	RESISTOR	33kΩ,1/10W
	R684	QRSA08J-471YN	RESISTOR	470Ω,1/10W
	R685	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
	R686	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
	C606	QCSA1HJ-121	CAPACITOR	120pF,50V
	C607	QCSA1HJ-121	CAPACITOR	120pF,50V
	C610	QETN0JM-228S	E CAPACITOR	2200μF,6.3V
	C611	QCFA1HZ-103	CAPACITOR	0.01μF,50V
	C612	QEK60JM-107	E CAPACITOR	100μF,6.3V
	C613	QCSA1HJ-270	CAPACITOR	27pF,50V
	C614	QAT3120-450	T CAPACITOR,TIMER CLOCK	
	C615	QCFA1HZ-103	CAPACITOR	0.01μF,50V
	C616	QEK61CM-106	E CAPACITOR	10μF,16V
	C617	QCFA1HZ-103	CAPACITOR	0.01μF,50V
	C619	QCC11EK-104	CAPACITOR	0.1μF,25V
	C620	QCYA1EK-104	CAPACITOR	0.1μF,25V
	C621	QETC1CM-106	E CAPACITOR	10μF,16V
	C622	QEK61CM-106	E CAPACITOR	10μF,16V
	L601	PELN0530-101JZ	COIL	100μH
△	CF601	PEVB0497	RESONATOR	
△	X601	PEVB0422	CRYSTAL RESONATOR	
△	TH601	PESC1041	POSI THERMISTOR	
△	CP601	ICP-N25	CIRCUIT PROTECTOR	
△	CP602	ICP-N20	CIRCUIT PROTECTOR	

#△	REF No.	PART No.	PART NAME, DESCRIPTION	
			– REGULATOR SECTION –	
	Q801	2SC3616(MLK)	TRANSISTOR	
	Q802	2SD2166	TRANSISTOR	
	Q803	2SC1740S	TRANSISTOR	
		or 2SC2785(J-E)-T	TRANSISTOR	
	Q804	DTA114EU	TRANSISTOR	
	Q805	2SD2144S(UVW)	TRANSISTOR	
	D802	RD5.1JSB2	DIODE	
	D803	1SS133	DIODE	
		or 1N4148M	DIODE	
		or MA165	DIODE	
	D804	HZ15CP	ZENER DIODE	
	R801	QRD161J-471	RESISTOR	470Ω,1/6W
	R802	QRSA08J-473YN	RESISTOR	47kΩ,1/10W
	R803	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
	R804	QRD161J-471	RESISTOR	470Ω,1/6W
	R805	QVPA606-471Z	V RESISTOR,SWD 5V	
	R806	QRSA08J-471YN	RESISTOR	470Ω,1/10W
	R808	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
	R811	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
	R812	QRD161J-511	RESISTOR	510Ω,1/6W
	R813	QRSA08J-471YN	RESISTOR	470Ω,1/10W
	R815	QRG02DJ-102X	OMF RESISTOR	1kΩ,2W
	C801	QETC0JM-107	E CAPACITOR	100μF,6.3V
	C802	QETC1CM-106	E CAPACITOR	10μF,16V
	C803	QETC1CM-107	E CAPACITOR	100μF,16V
	C804	QETC0JM-226	E CAPACITOR	22μF,6.3V
	C805	QETC0JM-107	E CAPACITOR	100μF,6.3V
	C806	QFLA1HJ-102Z	F CAPACITOR	0.001μF,50V
△	CP801	ICP-N20	CIRCUIT PROTECTOR	
			– TERMINAL SECTION –	
	Q702	2SD1468S(RS)	TRANSISTOR	
	R707	QRSA08J-471YN	RESISTOR	470Ω,1/10W
	C701	QCFA1HZ-103	CAPACITOR	0.01μF,50V
	C704	QEK61CM-107	E CAPACITOR	100μF,16V
	C705	QEK61CM-106	E CAPACITOR	10μF,16V
	L701	PU48530-100K	COIL	10μH
	L702	PU59152-100J	COIL	10μH

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VIDEO UNIT BOARD ASSEMBLY <05>

PWBA	PB10745A-06	VIDEO UNIT BOARD ASSY
IC1	TL8839P	IC
IC2	JCP0035-2	IC
Q1	2SA1576(QRS)	TRANSISTOR
Q2	2SC4081(QRS)	TRANSISTOR
Q3	2SA1576(QRS)	TRANSISTOR
Q4	2SC4081(QRS)	TRANSISTOR
Q5	2SC4081(QRS)	TRANSISTOR
Q6	2SC4081(QRS)	TRANSISTOR
Q7	2SC4081(QRS)	TRANSISTOR
Q8	DTC114WU	TRANSISTOR
Q9	2SC4081(QRS)	TRANSISTOR
Q10	2SA1576(QRS)	TRANSISTOR

#△ REF No.	PART No.	PART NAME, DESCRIPTION
Q11	DTC144WU	TRANSISTOR
Q12	DTC144WU	TRANSISTOR
Q13	DTA124EU	TRANSISTOR
Q14	2SA1576(QRS)	TRANSISTOR
Q15	2SC4081(QRS)	TRANSISTOR
D1	1SS133	DIODE
	or MA165	DIODE
	or 1N4148M	DIODE
D2	1SS133	DIODE
	or MA165	DIODE
	or 1N4148M	DIODE
D3	1SS133	DIODE
	or MA165	DIODE
	or 1N4148M	DIODE
D4	1SS133	DIODE
	or MA165	DIODE
	or 1N4148M	DIODE
D5	1SS133	DIODE
	or MA165	DIODE
	or 1N4148M	DIODE
D7	1SS292	DIODE
R1	NRSA63J-681N	RESISTOR 680Ω,1/16W
R2	NRSA63J-475N	RESISTOR 4.7MΩ,1/16W
R3	NRSA63J-361N	RESISTOR 360Ω,1/16W
R4	NRSA63J-103N	RESISTOR 10kΩ,1/16W
R5	NRSA63J-102N	RESISTOR 1kΩ,1/16W
R6	NRSA63J-475N	RESISTOR 4.7MΩ,1/16W
R7	NRSA63J-681N	RESISTOR 680Ω,1/16W
R8	NRSA63J-102N	RESISTOR 1kΩ,1/16W
R9	NRSA63J-102N	RESISTOR 1kΩ,1/16W
R10	NRSA63J-621N	RESISTOR 620Ω,1/16W
R11	NRSA63J-331N	RESISTOR 330Ω,1/16W
R12	NRSA63J-182N	RESISTOR 1.8kΩ,1/16W
R13	NRSA63J-222N	RESISTOR 2.2kΩ,1/16W
R14	NRSA63J-102N	RESISTOR 1kΩ,1/16W
R15	NRSA63J-221N	RESISTOR 220Ω,1/16W
R16	NRSA63J-332N	RESISTOR 3.3kΩ,1/16W
R17	NRSA63J-392N	RESISTOR 3.9kΩ,1/16W
R18	NVP1301-152N	V RESISTOR,NC BALANCE
R19	NRSA63J-222N	RESISTOR 2.2kΩ,1/16W
R20	NRSA63J-681N	RESISTOR 680Ω,1/16W
R21	NRSA63J-102N	RESISTOR 1kΩ,1/16W
R22	NRSA63J-122N	RESISTOR 1.2kΩ,1/16W
R23	NRSA63J-272N	RESISTOR 2.7kΩ,1/16W
R24	NRSA63J-821N	RESISTOR 820Ω,1/16W
R25	NVP1301-472N	V RESISTOR,PB Y LEVEL
R26	NRSA63J-333N	RESISTOR 33kΩ,1/16W
R27	NRSA63J-561N	RESISTOR 560Ω,1/16W
R28	NVP1301-223N	V RESISTOR,CARRIER
R29	NVP1301-103N	V RESISTOR,DEVIATION
R30	NRSA63J-432N	RESISTOR 4.3kΩ,1/16W
R31	NRSA63J-122N	RESISTOR 1.2kΩ,1/16W
R32	NRSA63J-562N	RESISTOR 5.6kΩ,1/16W
R33	NRSA63J-561N	RESISTOR 560Ω,1/16W
R34	NRSA63J-102N	RESISTOR 1kΩ,1/16W
R35	NRSA63J-272N	RESISTOR 2.7kΩ,1/16W
R36	NRSA63J-103N	RESISTOR 10kΩ,1/16W
R37	NRSA63G-511N	RESISTOR 510Ω,1/16W
R38	NRSA63J-103N	RESISTOR 10kΩ,1/16W
R39	NRSA63J-102N	RESISTOR 1kΩ,1/16W
R40	NRSA63J-102N	RESISTOR 1kΩ,1/16W
R41	NRSA63J-102N	RESISTOR 1kΩ,1/16W

#△ REF No.	PART No.	PART NAME, DESCRIPTION
R42	NVP1301-153N	V RESISTOR,EE Y LEVEL
R43	NRSA63J-823N	RESISTOR 82kΩ,1/16W
R44	NRSA63J-334N	RESISTOR 330kΩ,1/16W
R45	NVP1301-103N	V RESISTOR,W/D CLIP
R46	NRSA63J-103N	RESISTOR 10kΩ,1/16W
R47	NRSA63J-434N	RESISTOR 430kΩ,1/16W
R48	NRSA63J-562N	RESISTOR 5.6kΩ,1/16W
R49	NRSA63J-105N	RESISTOR 1MΩ,1/16W
R50	NRSA63J-331N	RESISTOR 330Ω,1/16W
R51	NRSA63J-102N	RESISTOR 1kΩ,1/16W
R52	NVP1301-222N	V RESISTOR,REC COLOR LEVEL
R53	NRSA63J-102N	RESISTOR 1kΩ,1/16W
R54	NRSA63J-271N	RESISTOR 270Ω,1/16W
R55	NRSA63J-333N	RESISTOR 33kΩ,1/16W
R56	NRSA63J-333N	RESISTOR 33kΩ,1/16W
R57	NRSA63J-102N	RESISTOR 1kΩ,1/16W
R58	NRSA63J-102N	RESISTOR 1kΩ,1/16W
R59	NRSA63J-102N	RESISTOR 1kΩ,1/16W
R60	NRSA63J-132N	RESISTOR 1.3kΩ,1/16W
C1	NCS31HJ-221A	CAPACITOR 220pF,50V
C2	NCS31HG-681A	CAPACITOR 680pF,50V
C3	NCS31HG-331A	CAPACITOR 330pF,50V
C4	NCS31HJ-220A	CAPACITOR 22pF,50V
C5	NCF31HZ-103A	CAPACITOR 0.01μF,50V
C6	NCS31HJ-150A	CAPACITOR 15pF,50V
C7	NCS31HJ-220A	CAPACITOR 22pF,50V
C8	NCS31HJ-680A	CAPACITOR 68pF,50V
C9	NCS31HG-121A	CAPACITOR 120pF,50V
C10	NCF31HZ-103A	CAPACITOR 0.01μF,50V
C11	NCF31CZ-473A	CAPACITOR 0.047μF,16V
C12	QETC1HM-474	E CAPACITOR 0.47μF,50V
C13	QCVB1CN-103	CAPACITOR 0.01μF,16V
C14	NCF31CZ-104A	CAPACITOR 0.1μF,16V
C15	NCF31CZ-104A	CAPACITOR 0.1μF,16V
C16	NCS31HJ-390A	CAPACITOR 39pF,50V
C17	NCS31HJ-180A	CAPACITOR 18pF,50V
C18	NCS31HJ-220A	CAPACITOR 22pF,50V
C19	QETC0JM-476	E CAPACITOR 47μF,6.3V
C20	NCF31HZ-103A	CAPACITOR 0.01μF,50V
C21	NCS31HJ-330A	CAPACITOR 33pF,50V
C22	QEK61HM-474	E CAPACITOR 0.47μF,50V
C24	QETC1EM-475	E CAPACITOR 4.7μF,25V
C25	QETC1CM-106	E CAPACITOR 10μF,16V
C26	QETC1AM-226	E CAPACITOR 22μF,10V
C27	QETC1CM-106	E CAPACITOR 10μF,16V
C28	QETC0JM-107	E CAPACITOR 100μF,6.3V
C29	NCF31CZ-104A	CAPACITOR 0.1μF,16V
C30	NCF31HZ-103A	CAPACITOR 0.01μF,50V
C31	NCF31HZ-103A	CAPACITOR 0.01μF,50V
C32	QETC1HM-225	E CAPACITOR 2.2μF,50V
C33	QETC1HM-474	E CAPACITOR 0.47μF,50V
C34	NCS31HJ-620A	CAPACITOR 62pF,50V
C35	NCS31HG-201A	CAPACITOR 200pF,50V
C36	QETC1EM-475	E CAPACITOR 4.7μF,25V
C37	NCB31EK-223A	CAPACITOR 0.022μF,25V
C38	NCS31HG-130A	CAPACITOR 13pF,50V
C39	NCF31HZ-103A	CAPACITOR 0.01μF,50V
C40	QETC1HM-105	E CAPACITOR 1μF,50V
C41	NCB31EK-223A	CAPACITOR 0.022μF,25V
C42	NCS31HJ-101A	CAPACITOR 100pF,50V
C43	NCS31HJ-390A	CAPACITOR 39pF,50V
C44	QENC1EM-475	NP E CAPACITOR 4.7μF,25V

#△ REF No.	PART No.	PART NAME, DESCRIPTION	
	C45	QETC1EM-475	E CAPACITOR 4.7μF,25V
	C46	NCF31CZ-473A	CAPACITOR 0.047μF,16V
	C47	QETC1HM-104	E CAPACITOR 0.1μF,50V
	C48	QETC1HM-474	E CAPACITOR 0.47μF,50V
	C49	NCB31CK-333A	CAPACITOR 0.033μF,16V
	C50	NCF31HZ-103A	CAPACITOR 0.01μF,50V
	C51	NCF31CZ-104A	CAPACITOR 0.1μF,16V
	C52	NCF31HZ-103A	CAPACITOR 0.01μF,50V
	C53	NCF31CZ-104A	CAPACITOR 0.1μF,16V
	C54	NCB31CK-473A	CAPACITOR 0.047μF,16V
	C55	QETC1EM-475	E CAPACITOR 4.7μF,25V
	C56	NCS31HJ-5R0A	CAPACITOR 5pF,50V
	C57	QETC1HM-105	E CAPACITOR 1μF,50V
	C58	NCF31HZ-103A	CAPACITOR 0.01μF,50V
	C59	NCF31CZ-104A	CAPACITOR 0.1μF,16V
	C60	QETC0JM-107	E CAPACITOR 100μF,6.3V
	C61	NCB31HK-103A	CAPACITOR 0.01μF,50V
	C62	NCB31HK-182A	CAPACITOR 0.0018μF,50V
	C63	NCS31HJ-300A	CAPACITOR 30pF,50V
	C64	NCF31CZ-104A	CAPACITOR 0.1μF,16V
	C65	NCB31CK-104A	CAPACITOR 0.1μF,16V
	C69	NCB31EK-103A	CAPACITOR 0.01μF,25V
	C70	NCF31HZ-103A	CAPACITOR 0.01μF,50V
	C71	NCF31CZ-104A	CAPACITOR 0.1μF,16V
	L1	PU59152-121J	COIL 120μH
	L2	PU59152-330J	COIL 33μH
	L3	PU59152-330J	COIL 33μH
	L4	PU59152-820J	COIL 82μH
	L5	PU59152-221J	COIL 220μH
	L6	PU59153-101K	COIL 100μH
	L7	PU59152-680J	COIL 68μH
	L8	PU48530-101K	COIL 100μH
	L9	PU59152-121J	COIL 120μH
	L10	PU59152-150J	COIL 15μH
	L11	PU48530-561J	COIL 560μH
	L12	PU59152-680J	COIL 68μH
	LPF1	PELN0477	LOW PASS FILTER
	LPF2	PELN0856	LOW PASS FILTER
	DL1	PEVB0515	COMB FILTER
△	X1	PEVB0386	CRYSTAL RESONATOR
	CN1	PEMC0712-111	PIN HEADER,(2-12) MAIN
	CN2	PEMC0712-112	PIN HEADER,(1-12) MAIN
	CN3	PEMC0712-111	PIN HEADER,(1-11) MAIN

#△ REF No.	PART No.	PART NAME, DESCRIPTION	
	Q105	2SA933S(RS)	TRANSISTOR
		or 2SA1267(YG)-TJK	TRANSISTOR
	R1	QRD161J-221	RESISTOR 220Ω,1/6W
	R2	QRD161J-221	RESISTOR 220Ω,1/6W
	R24	QRD161J-472	RESISTOR 4.7kΩ,1/6W
	R25	QRD161J-472	RESISTOR 4.7kΩ,1/6W
	R101	QRD123J-391SX	RESISTOR 390Ω,1/2W
	R102	QRD161J-153	RESISTOR 15kΩ,1/6W
	R103	QRD161J-103	RESISTOR 10kΩ,1/6W
	R104	QRD161J-102	RESISTOR 1kΩ,1/6W
	R105	QRD161J-102	RESISTOR 1kΩ,1/6W
	R106	QRD161J-102	RESISTOR 1kΩ,1/6W
	R107	QRD161J-152	RESISTOR 1.5kΩ,1/6W
	R108	QRD161J-750	RESISTOR 75Ω,1/6W
	R109	QRD161J-750	RESISTOR 75Ω,1/6W
	R110	QRD161J-223	RESISTOR 22kΩ,1/6W
	R111	QRD161J-333	RESISTOR 33kΩ,1/6W
	R112	QRD161J-102	RESISTOR 1kΩ,1/6W
	R113	QRD161J-683	RESISTOR 68kΩ,1/6W
	R114	QRD161J-473	RESISTOR 47kΩ,1/6W
	R115	QRD161J-392	RESISTOR 3.9kΩ,1/6W
	C101	QETC0JM-108	E CAPACITOR 1000μF,6.3V
	C102	QETC1CM-476	E CAPACITOR 47μF,16V
	C103	QCVB1CN-103	CAPACITOR 0.01μF,16V
	C104	QETC1CM-106	E CAPACITOR 10μF,16V
	C105	QCVB1CN-103	CAPACITOR 0.01μF,16V
	C106	QETC1AM-476	E CAPACITOR 47μF,10V
	C107	QETC1HM-225	E CAPACITOR 2.2μF,50V
	C108	QCVB1CN-103	CAPACITOR 0.01μF,16V
	C111	QETC1AM-476	E CAPACITOR 47μF,10V
	L101	PU48530-101K	COIL 100μH
	L102	PU48530-101K	COIL 100μH
	EQ101	PELN0877	EQUALIZER
	ETH1	PQ46090	EARTH PLATE
	JA1	PEMC1089-02	PIN JACK,A.OUT(L)
	JA2	PEMC1089	PIN JACK,A.OUT(R)
	JA3	PEMC1090-02	PIN JACK(SW),A.IN(L)
	JA4	PEMC1090	PIN JACK(SW),A.IN(R)
	JA5	PEMC1089-03	PIN JACK,V.IN
	JA6	PEMC1089-03	PIN JACK,V.OUT
	SCW1	SDSF3006Z	SCREW,X2
	TB1	PQ21718E	TERMINAL ASSY
	CN711	PEMC0970-205	CONNECTOR,(1-5) MAIN
	CN712	PEMC0970-211	CONNECTOR,(2-12) MAIN
	CN713	PEMC0970-211	CONNECTOR,(2-12) MAIN

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TERMINAL BOARD ASSEMBLY <06>

PWBA	PB10869A-01	TERMINAL BOARD ASSY
Q101	2SA933S(RS)	TRANSISTOR
	or 2SA1267(YG)-TJK	TRANSISTOR
Q102	2SA933S(RS)	TRANSISTOR
	or 2SA1267(YG)-TJK	TRANSISTOR
Q103	2SC1740S(RS)	TRANSISTOR
	or 2SC3199(GB)-TJK	TRANSISTOR
	or 2SC3311A(RS)	TRANSISTOR
	or 2SC536SPA(FG)	TRANSISTOR
Q104	2SA933S(RS)	TRANSISTOR
	or 2SA1267(YG)-TJK	TRANSISTOR

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AUDIO UNIT BOARD ASSEMBLY <09>

PWBA	PB10799B	AUDIO UNIT BOARD ASSY	
IC1	JCP0038	IC	
	or JCP0038-B	IC	
R2	NRSA63J-511N	RESISTOR	510Ω,1/16W
R3	NRSA63J-472N	RESISTOR	4.7kΩ,1/16W
R4	NRSA63J-513N	RESISTOR	51kΩ,1/16W
R5	NVP1301-333NU	V RESISTOR,L DEVIATION	
R10	NRSA63J-103N	RESISTOR	10kΩ,1/16W
R11	NVP1301-153NU	V RESISTOR,L CARRIER	

#△	REF No.	PART No.	PART NAME, DESCRIPTION	
	R13	NRSA63J-822N	RESISTOR	8.2kΩ,1/16W
	R14	NRSA63J-183N	RESISTOR	18kΩ,1/16W
	R15	NRSA63J-473N	RESISTOR	47kΩ,1/16W
	R16	NRSA63J-104N	RESISTOR	100kΩ,1/16W
	R18	NRSA63J-303N	RESISTOR	30kΩ,1/16W
	R19	NRSA63J-222N	RESISTOR	2.2kΩ,1/16W
	R20	NRSA63J-222N	RESISTOR	2.2kΩ,1/16W
	R22	NRSA63J-102N	RESISTOR	1kΩ,1/16W
	R23	NRSA63J-102N	RESISTOR	1kΩ,1/16W
	R24	NRSA63J-752N	RESISTOR	7.5kΩ,1/16W
	R25	NVP1301-103NU	V RESISTOR,R CARRIER	
	R30	NVP1301-333UN	V RESISTOR,R DEVIATION	
	R31	NRSA63J-513N	RESISTOR	51kΩ,1/16W
	R32	NRSA63J-472N	RESISTOR	4.7kΩ,1/16W
	R33	NRSA63J-511N	RESISTOR	510Ω,1/16W
	R34	NRSA63J-475N	RESISTOR	4.7MΩ,1/16W
	R35	NRSA63J-514N	RESISTOR	510kΩ,1/16W
	R38	NRSA63J-103N	RESISTOR	10kΩ,1/16W
	C1	QETF1HM-225	E CAPACITOR	2.2μF,50V
	C2	QETF1AM-336	E CAPACITOR	33μF,10V
	C3	NCB31CK-473A	CAPACITOR	0.047μF,16V
	C4	QETF1HM-225	E CAPACITOR	2.2μF,50V
	C5	NCB31CK-333A	CAPACITOR	0.033μF,16V
	C6	QETF1AM-476	E CAPACITOR	47μF,10V
	C7	QETF1CM-106	E CAPACITOR	10μF,16V
	C8	NCB31EK-103A	CAPACITOR	0.01μF,25V
	C9	QETF0JM-107	E CAPACITOR	100μF,6.3V
	C10	NCB31HK-102A	CAPACITOR	0.001μF,50V
	C14	NCB31HK-392A	CAPACITOR	0.0039μF,50V
	C15	NCB31CK-333A	CAPACITOR	0.033μF,16V
	C16	QETF1HM-105	E CAPACITOR	1μF,50V
	C18	NCB31HK-561A	CAPACITOR	560pF,50V
	C20	NCS31HJ-101A	CAPACITOR	100pF,50V
	C21	NCS31HJ-101A	CAPACITOR	100pF,50V
	C22	NCB31HK-392A	CAPACITOR	0.0039μF,50V
	C26	NCB31HK-102A	CAPACITOR	0.001μF,50V
	C28	NCB31EK-103A	CAPACITOR	0.01μF,25V
	C29	QETF1CM-106	E CAPACITOR	10μF,16V
	C30	QETF1AM-476	E CAPACITOR	47μF,10V
	C31	NCB31CK-333A	CAPACITOR	0.033μF,16V
	C32	QETF1HM-225	E CAPACITOR	2.2μF,50V
	C33	NCB31CK-473A	CAPACITOR	0.047μF,16V
	C34	QETF1AM-336	E CAPACITOR	33μF,10V
	C35	QETF1HM-225	E CAPACITOR	2.2μF,50V
	C36	QETF1CM-106	E CAPACITOR	10μF,16V
	C38	QETF1AM-226	E CAPACITOR	22μF,10V
	C42	QETF0JM-107	E CAPACITOR	100μF,6.3V
	C43	QETF1AM-107	E CAPACITOR	100μF,10V
	C44	QETF1CM-476	E CAPACITOR	47μF,16V
	C45	QETF1AM-476	E CAPACITOR	47μF,10V
	C48	QETF1CM-106	E CAPACITOR	10μF,16V
	C49	QETF0JM-476	E CAPACITOR	47μF,6.3V
	C50	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C51	NCS31HJ-360A	CAPACITOR	36pF,50V
	C52	NCS31HJ-361A	CAPACITOR	360pF,50V
	C53	NCS31HJ-330A	CAPACITOR	33pF,50V
	C54	NCS31HJ-201A	CAPACITOR	200pF,50V
	L1	PU59153-101K	COIL	100μH
	L2	PU59153-101K	COIL	100μH
	BPF1	PELN0946	BAND PASS FILTER	
	BPF2	PELN0947	BAND PASS FILTER	
	JP1	PEMC0919-120K	PIN HEADER,(1-20) MAIN	

#△	REF No.	PART No.	PART NAME, DESCRIPTION	
	JP2	PEMC0919-120K	PIN HEADER,(1-20) MAIN	

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AUDIO/CONTROL HEAD BOARD ASSY <12>

	PWBA6	PB10819A6-02	AUDIO CONTROL HEAD BOARD ASSY	
	CN1	PU60910-107	WIRE TRAP,(1-7) MAIN	

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DEMOD BOARD ASSEMBLY <14>

	PWBA	PB10832B	DEMOD BOARD ASSY	
	IC4	UPC1391H	IC	
	IC5	TDA8415	IC	
	Q6	IMX3	TRANSISTOR	
	Q7	DTC144EU	TRANSISTOR	
	Q8	DTA124EU	TRANSISTOR	
	D2	DAN202U	DIODE	
	R41	QRSA08J-471YN	RESISTOR	470Ω,1/10W
	R42	QRSA08J-561YN	RESISTOR	560Ω,1/10W
	R43	QRSA08J-271YN	RESISTOR	270Ω,1/10W
	R44	QRSA08J-391YN	RESISTOR	390Ω,1/10W
	R45	QVZ3521-103Z	V RESISTOR,SEPARETION	
	R47	QRSA08J-272YN	RESISTOR	2.7kΩ,1/10W
	R48	QRSA08J-272YN	RESISTOR	2.7kΩ,1/10W
	R49	QRSA08J-222YN	RESISTOR	2.2kΩ,1/10W
	R50	QRSA08J-222YN	RESISTOR	2.2kΩ,1/10W
	R51	QRSA08J-473YN	RESISTOR	47kΩ,1/10W
	R52	QRSA08J-473YN	RESISTOR	47kΩ,1/10W
	R53	QRSA08J-471YN	RESISTOR	470Ω,1/10W
	R54	QRSA08J-471YN	RESISTOR	470Ω,1/10W
	R55	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
	R56	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
	R57	QRSA08J-391YN	RESISTOR	390Ω,1/10W
	R61	QRSA08J-101YN	RESISTOR	100Ω,1/10W
	R62	QRSA08J-101YN	RESISTOR	100Ω,1/10W
	C51	QCYA1HK-103	CAPACITOR	0.01μF,50V
	C52	QCYA1HK-103	CAPACITOR	0.01μF,50V
	C53	QCSA1HJ-220	CAPACITOR	22pF,50V
	C54	QCYA1HK-103	CAPACITOR	0.01μF,50V
	C55	QEKF1HM-225	E CAPACITOR	2.2μF,50V
	C56	QEKF1HM-225	E CAPACITOR	2.2μF,50V
	C57	QCYA1HK-103	CAPACITOR	0.01μF,50V
	C58	QCYA1HK-103	CAPACITOR	0.01μF,50V
	C61	QEKF1CM-106	E CAPACITOR	10μF,16V
	C62	QEKF1CM-106	E CAPACITOR	10μF,16V
	C63	QEKF1CM-226	E CAPACITOR	22μF,16V
	C76	QCSA1HJ-101	CAPACITOR	100pF,50V
	C77	QCSA1HJ-101	CAPACITOR	100pF,50V
	CF3	PU52775	CERAMIC FILTER	
	CF4	PU52775-2	CERAMIC FILTER	
	CF5	PEVB0481	C DISCRIMINATER	
	LC1	PU48530-1R0J	COIL	1μH
△	X2	PEVB0479	CRYSTAL RESONATOR	

#△ REF No.	PART No.	PART NAME, DESCRIPTION
JP1	PEMC0778-109	PIN HEADER,(1-9) MAIN
JP2	PEMC0778-105	PIN HEADER,(1-5) MAIN

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FRONT BOARD ASSEMBLY <28>

PWBA	PB10833E	FRONT BOARD ASSY
IC1	UPD16311GC(P)	IC
IC2	GP1U581X	IR DETECT UNIT
	or HC-377J	IR DETECT UNIT
D1	1SS132Y	DIODE
	or 1N4148M	DIODE
D2	1SS132Y	DIODE
	or 1N4148M	DIODE
D3	1SS132Y	DIODE
	or 1N4148M	DIODE
D4	1SS132Y	DIODE
	or 1N4148M	DIODE
D5	1SS132Y	DIODE
	or 1N4148M	DIODE
D6	1SS132Y	DIODE
	or 1N4148M	DIODE
D10	1SS132Y	DIODE,VCR PLUS
	or 1N4148M	DIODE
D11	RD4.7ES-T1B2	ZENER DIODE
D12	SLC-22VR3F	LE DIODE,POWER
D13	SLH-34DC3F	LE DIODE,ONE P INDE
D14	SLC-22DU3F	LE DIODE,RAE
D16	1SS132Y	DIODE
	or 1N4148M	DIODE
D18	1SS132Y	DIODE
	or 1N4148M	DIODE
D19	1SS132Y	DIODE
	or 1N4148M	DIODE
D20	1SS132Y	DIODE
	or 1N4148M	DIODE
D23	1SS132Y	DIODE
	or 1N4148M	DIODE
D25	1SS132Y	DIODE
	or 1N4148M	DIODE
D27	1SS132Y	DIODE
	or 1N4148M	DIODE
D29	SLC-22DU3F	LE DIODE,HYPER BASS
D30	11ES2	DIODE
D31	11ES2	DIODE
D32	1SS133	DIODE
	or MA165	DIODE
	or 1N4148M	DIODE
D33	1SS133	DIODE
	or MA165	DIODE
	or 1N4148M	DIODE
D34	1SS133	DIODE
	or 1N4148M	DIODE
	or MA165	DIODE
R1	QRD161J-333	RESISTOR 33kΩ,1/6W
R2	QRD161J-333	RESISTOR 33kΩ,1/6W
R3	QRD161J-333	RESISTOR 33kΩ,1/6W
R4	QRD161J-333	RESISTOR 33kΩ,1/6W

#△ REF No.	PART No.	PART NAME, DESCRIPTION
R5	QRD161J-472	RESISTOR 4.7kΩ,1/6W
R6	QRD161J-472	RESISTOR 4.7kΩ,1/6W
R7	QRD161J-102	RESISTOR 1kΩ,1/6W
R8	QRD161J-333	RESISTOR 33kΩ,1/6W
R9	QRD161J-103	RESISTOR 10kΩ,1/6W
R10	QRD161J-103	RESISTOR 10kΩ,1/6W
R11	QRD161J-331	RESISTOR 330Ω,1/6W
R12	QRD161J-331	RESISTOR 330Ω,1/6W
R14	QRD161J-331	RESISTOR 330Ω,1/6W
R15	QRD161J-103	RESISTOR 10kΩ,1/6W
R16	QRD161J-151	RESISTOR 150Ω,1/6W
R17	QRD161J-750	RESISTOR 75Ω,1/6W
R18	QRD161J-331	RESISTOR 330Ω,1/6W
R21	QRD162J-0R0	RESISTOR 0Ω,1/6W
RA1	QRB045J-333F	RESISTOR ARRAY 33kΩ,4W
C1	QERF0JM-336	E CAPACITOR 33μF,6.3V
C3	QERF1HM-106	E CAPACITOR 10μF,50V
C4	QCSB1HJ-330	CAPACITOR 33pF,50V
C5	QCSB1HJ-330	CAPACITOR 33pF,50V
C6	QERF0JM-227	E CAPACITOR 220μF,6.3V
C7	QCFB1HZ-104	CAPACITOR 0.1μF,50V
C10	QCFB1HZ-473	CAPACITOR 0.047μF,50V
C11	QCFB1HZ-473	CAPACITOR 0.047μF,50V
C12	QETF0JM-107	E CAPACITOR 100μF,6.3V
C21	QCVB1CN-103	CAPACITOR 0.01μF,16V
L1	PU48530-101J	COIL 100μH
S3	PESW0525-02Z	TACT SWITCH,OPERATE
S4	PESW0525-02Z	TACT SWITCH,TIMER
S7	PESW0525-02Z	TACT SWITCH,PLAY
S8	PESW0525-02Z	TACT SWITCH,STOP/EJECT
S9	PESW0525-02Z	TACT SWITCH,SP/LP
S10	PESW0525-02Z	TACT SWITCH,ONE P INDE
S11	PESW0525-02Z	TACT SWITCH,REC/ITR
S12	PESW0525-02Z	TACT SWITCH,PAUSE
S13	PESW0525-02Z	TACT SWITCH,RAE
S15	PESW0525-02Z	TACT SWITCH,CH SEARCH
S16	PESW0525-02Z	TACT SWITCH,STORE
S19	PESW0525-02Z	TACT SWITCH,C.MEMORY
S22	PESW0525-02Z	TACT SWITCH,IN/OUT
S23	PESW0525-02Z	TACT SWITCH,START
S25	PESW0525-02Z	TACT SWITCH,H/N/M
S26	PESW0525-02Z	TACT SWITCH,H.BASS
FDP1	PEDP0106-03	FLUORESCENT DISPLAY PANEL
HD1	PQ34951	FDP HOLDER(L)
HD2	PQ34952	FDP HOLDER(R)
HD3	PQM30038-6	LED HOLDER,D12
HD4	PQM30038-2-2	LED HOLDER,D13
HD5	PQM30038-6	LED HOLDER,D29
HD6	PQM30038-6	LED HOLDER,D14
JA1	PEMC1076	PIN JACK,V.IN
JA2	PEMC1076	PIN JACK,A.IN(R)
JA3	PEMC1076	PIN JACK,A.IN(L)
CN1	PEMC0915-109	FFC CONNECTOR,(1-9) MAIN-DISP
CN2	PEMC0915-109	FFC CONNECTOR

#△ REF No.	PART No.	PART NAME, DESCRIPTION	

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PRE/REC BOARD ASSEMBLY <43>

PWBA	PB10854C-01	PRE/REC BOARD ASSY	
IC501	AN3389SBNS-XE	IC	
IC1001	AN3380NK	IC	
Q503	2SC4081(QRS)	TRANSISTOR	
Q504	2SC4081(QRS)	TRANSISTOR	
Q505	2SA1576(QRS)	TRANSISTOR	
Q506	2SC4081(QRS)	TRANSISTOR	
Q507	2SC4081(QRS)	TRANSISTOR	
Q508	DTC144WU	TRANSISTOR	
Q512	DTC114WU	TRANSISTOR	
Q514	DTA124EU	TRANSISTOR	
Q1001	DTC124TU	TRANSISTOR	
Q1002	DTC124TU	TRANSISTOR	
Q1003	DTC124TU	TRANSISTOR	
Q1004	DTC114WU	TRANSISTOR	
D501	1SS133	DIODE	
	or MA165	DIODE	
	or 1N4148M	DIODE	
D502	1SS133	DIODE	
	or 1N4148M	DIODE	
	or MA165	DIODE	
D505	1SS133	DIODE	
	or MA165	DIODE	
	or 1N4148M	DIODE	
D508	DAN202U	DIODE	
	or MA141WK	DIODE	
R501	QRSA08J-332YN	RESISTOR	3.3kΩ,1/10W
R509	QRSA08J-182YN	RESISTOR	1.8kΩ,1/10W
R510	QRSA08J-222YN	RESISTOR	2.2kΩ,1/10W
R514	QRSA08J-681YN	RESISTOR	680Ω,1/10W
R515	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R516	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R517	QRSA08J-222YN	RESISTOR	2.2kΩ,1/10W
R518	QRSA08J-222YN	RESISTOR	2.2kΩ,1/10W
R519	QRSA08J-391YN	RESISTOR	390Ω,1/10W
R520	QRSA08J-391YN	RESISTOR	390Ω,1/10W
R521	QRSA08J-911YN	RESISTOR	910Ω,1/10W
R522	QRSA08J-222YN	RESISTOR	2.2kΩ,1/10W
R523	QRSA08J-222YN	RESISTOR	2.2kΩ,1/10W
R524	QRSA08J-821YN	RESISTOR	820Ω,1/10W
R525	QRSA08J-152YN	RESISTOR	1.5kΩ,1/10W
R526	QRSA08J-122YN	RESISTOR	1.2kΩ,1/10W
R527	QRSA08J-271YN	RESISTOR	270Ω,1/10W
R528	QRSA08J-122YN	RESISTOR	1.2kΩ,1/10W
R531	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R532	QRSA08J-222YN	RESISTOR	2.2kΩ,1/10W
R533	QRSA08J-272YN	RESISTOR	2.7kΩ,1/10W
R534	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R535	QRSA08J-123YN	RESISTOR	12kΩ,1/10W
R536	NRVA62D-433N	RESISTOR	43kΩ,1/16W
R539	QRD161J-334	RESISTOR	330kΩ,1/6W
R541	QRSA08J-271YN	RESISTOR	270Ω,1/10W
R542	QRSA08J-271YN	RESISTOR	270Ω,1/10W
R543	QRSA08J-331YN	RESISTOR	330Ω,1/10W
R544	QRSA08J-301YN	RESISTOR	300Ω,1/10W
R545	QRSA08J-821YN	RESISTOR	820Ω,1/10W
R546	QRD161J-0R0	RESISTOR	0Ω,1/6W
R548	QRSA08J-224YN	RESISTOR	220kΩ,1/10W

#△ REF No.	PART No.	PART NAME, DESCRIPTION	
R550	QRSA08J-181YN	RESISTOR	180Ω,1/10W
R552	QRSA08J-101YN	RESISTOR	100Ω,1/10W
R570	QRD161J-472	RESISTOR	4.7kΩ,1/6W
R571	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R1001	QRSA08J-273YN	RESISTOR	27kΩ,1/10W
R1002	QRSA08J-101YN	RESISTOR	100Ω,1/10W
R1003	QRSA08J-101YN	RESISTOR	100Ω,1/10W
R1004	QRSA08J-274YN	RESISTOR	270kΩ,1/10W
R1005	QRSA08J-222YN	RESISTOR	2.2kΩ,1/10W
R1006	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R1007	QRSA08J-153YN	RESISTOR	15kΩ,1/10W
R1010	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R1011	QRD161J-102	RESISTOR	1kΩ,1/6W
R1012	QRSA08J-560YN	RESISTOR	56Ω,1/10W
R1013	QRSA08J-560YN	RESISTOR	56Ω,1/10W
C504	QCFA1HZ-103	CAPACITOR	0.01μF,50V
C505	QCFA1HZ-103	CAPACITOR	0.01μF,50V
C506	QCSA1HJ-102	CAPACITOR	0.001μF,50V
C507	QCSA1HJ-681	CAPACITOR	680pF,50V
C508	QCSA1HJ-150	CAPACITOR	15pF,50V
C509	QCFA1HZ-103	CAPACITOR	0.01μF,50V
C510	QCSA1HJ-360	CAPACITOR	36pF,50V
C511	QCFA1HZ-103	CAPACITOR	0.01μF,50V
C512	QCSA1HJ-390	CAPACITOR	39pF,50V
C513	QCSA1HJ-471	CAPACITOR	470pF,50V
C514	QCSA1HJ-160	CAPACITOR	16pF,50V
C515	QCSA1HJ-7R0	CAPACITOR	7pF,50V
C516	QCC11CJ-104	CAPACITOR	0.1μF,16V
C517	QCFA1HZ-103	CAPACITOR	0.01μF,50V
C518	QCSA1HJ-391	CAPACITOR	390pF,50V
C520	QCFA1HZ-103	CAPACITOR	0.01μF,50V
C521	QCFA1HZ-103	CAPACITOR	0.01μF,50V
C522	QFV11HJ-104	F CAPACITOR	0.1μF,50V
C523	QCYA1HK-333	CAPACITOR	0.033μF,50V
C524	QCSA1HJ-680	CAPACITOR	68pF,50V
C525	QCSA1HJ-560	CAPACITOR	56pF,50V
C526	QCYA1HK-333	CAPACITOR	0.033μF,50V
C527	QCFA1HZ-103	CAPACITOR	0.01μF,50V
C528	QCFA1HZ-103	CAPACITOR	0.01μF,50V
C529	QCYA1HK-333	CAPACITOR	0.033μF,50V
C530	QCSA1HJ-680	CAPACITOR	68pF,50V
C531	QCSA1HJ-560	CAPACITOR	56pF,50V
C532	QCYA1HK-333	CAPACITOR	0.033μF,50V
C533	QFV11HJ-104	F CAPACITOR	0.1μF,50V
C534	QCFA1HZ-103	CAPACITOR	0.01μF,50V
C536	QER61CM-476	E CAPACITOR	47μF,16V
C537	QER60JM-476	E CAPACITOR	47μF,6.3V
C540	QCSA1HJ-470	CAPACITOR	47pF,50V
C541	QCSA1HJ-390	CAPACITOR	39pF,50V
C542	QFV11HJ-104	F CAPACITOR	0.1μF,50V
C543	QCFA1HZ-103	CAPACITOR	0.01μF,50V
C549	QCYA1EK-104	CAPACITOR	0.1μF,25V
C550	QCFA1HZ-103	CAPACITOR	0.01μF,50V
C554	QCYA1HK-103	CAPACITOR	0.01μF,50V
C1001	QCFA1CZ-104	CAPACITOR	0.1μF,16V
C1002	QCYA1HK-471	CAPACITOR	470pF,50V
C1003	QCYA1HK-152	CAPACITOR	0.0015μF,50V
C1004	QCYA1HK-152	CAPACITOR	0.0015μF,50V
C1005	QCYA1HK-102	CAPACITOR	0.001μF,50V
C1006	QCYA1HK-102	CAPACITOR	0.001μF,50V
C1007	QCFA1CZ-224	CAPACITOR	0.22μF,16V

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
C1008	QCYA1HK-471	CAPACITOR	470pF,50V
C1009	QEK60JM-107	E CAPACITOR	100μF,6.3V
C1010	QCFA1HZ-333	CAPACITOR	0.033μF,50V
C1011	QCVB1CN-103	CAPACITOR	0.01μF,16V
C1012	QCFA1CZ-224	CAPACITOR	0.22μF,16V
C1013	QCSA1HJ-470	CAPACITOR	47pF,50V
C1014	QCSA1HJ-101	CAPACITOR	100pF,50V
C1015	QCFA1HZ-103	CAPACITOR	0.01μF,50V
C1016	QCFA1HZ-103	CAPACITOR	0.01μF,50V
L501	PU48530-470J	COIL	47μH
L503	PU48530-101J	COIL	100μH
L504	PU59152-560J	COIL	56μH
L505	PU59152-220J	COIL	22μH
L506	PU59152-470J	COIL	47μH
L507	PU59152-470J	COIL	47μH
L508	PU59152-121J	COIL	120μH
L509	PU59152-330J	COIL	33μH
L510	PU59152-180J	COIL	18μH
L1001	PELN0530-101JZ	COIL	100μH
BKT1	PQ21512	SHIELD FRAME,PRE	
CN501	PEMC1056-117	CONNECTOR,(3-19) MAIN	
CN502	PEMC1003-009	CONNECTOR,(1-9) UPPER DRUM	
CN1001	PU60910-106	WIRE TRAP	

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DECK TERMINAL BOARD ASSEMBLY <51>

PWBA1	PB10819A1-02	DECK TERMINAL BOARD ASSY	
⚠ IC1	BA6418N	IC	
⚠	or XRA6418N	IC	
Q2	PT491F	END SENSOR	
D1	SIR-381SB3FM	LE DIODE	
D2	RD6.2ES-T1B2	ZENER DIODE	
	or MTZ6.2BT-77	ZENER DIODE	
R1	QRD161J-102	RESISTOR	1kΩ,1/6W
R3	QRD161J-331	RESISTOR	330Ω,1/6W
R4	QRD161J-820	RESISTOR	82Ω,1/6W
R6	QRD161J-331	RESISTOR	330Ω,1/6W
R7	QRD161J-332	RESISTOR	3.3kΩ,1/6W
C1	QCVB1CM-103	CAPACITOR	0.01μF,16V
C3	QETA1CM-227	E CAPACITOR	220μF,16V
PS1	PS5705HR	PH INTERRUPTER	
PS2	PS5705HR	PH INTERRUPTER	
WR1	PEWR0728-01-02	PARALLEL WIRE	
CN1	PEMC0915-018	FFC CONNECTOR,(1-18) MAIN	
CN2	PU60642	7PIN CONNECTOR,(1-7) CAP MDA	
CN3	PU60640	4PIN CONNECTOR,(1-4) CASS HOU	
CN5	PU60910-2	CONNECTOR,(1-2) LOADING MOTOR	

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CASSETTE HOUSING BOARD <56>

PWBA3	PB10819A3-02	CASSETTE HOUSING BOARD ASSY
Q2	PN268VI	PHOTO TRANSISTOR

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
C1	QCVB1CM-103	CAPACITOR	0.01μF,16V
S1	PESW0589	PUSH SWITCH	
CN2	PU60639	4PIN SOCKET	

SECTION 6
TECHNICAL INFORMATIONS

6.1 SYSCON CIRCUIT

6.1.1 Syscon CPU pin function (IC601) 1/2

PIN NO.	LABEL	IN/OUT	NOTE
1	P.DOWN	IN	POWER DOWN DETECT(POWER DOWN:H → L)
2	SYNC DET	IN	SYNC DETECT (NO SYNC:H)
3	LOCK DET	IN	TUNING LOCK CHECK
4	AVGFM	IN	AUTO TRACKING DATA(AVERAGE VOLTAGE OF PB FM LEVEL) INPUT
5	AVSS	-	GND
6	TEST	-	GND
7	X2	-	MAIN SYSTEM CLOCK(10MHz)
8	X1	-	MAIN SYSTEM CLOCK(10MHz)
9	VSS	-	GND
10	OSC1	IN	SUB SYSTEM CLOCK
11	OSC2	OUT	SUB SYSTEM CLOCK
12	RESET	IN	RESET AT CONNECT VCR TO AC
13	(NMI)	-	NC
14	LP SPE(H)	OUT	LP SPECIAL PB MODE:H
15	PLL DATA	OUT	TUNING CONTROL SERIAL DATA OUTPUT
16	V.MUTE	OUT	VIDEO MUTE CONTROL(MUTE ON:H)
17	PLL CLK	OUT	TUNING DATA TRANSFER CLOCK
18	M.CE	OUT	MOMORY IC CHIP ENABLE
19	F.DATA	IN/OUT	MEMORY IC DATA
20	PROTECT	IN	POWER PROTECT DETECT (POWER OFF:L)
21	RAE OUT	OUT	REMOTE PAUSE CONTROL OUTPUT
22	TU FG	IN	TAKE-UP REEL ROTATION DET/TAPE REMAIN
23	SUP FG	IN	SUPPLY REEL ROTATION DET/TAPE REMAIN
24	DAV	IN	VPS TRANSMITION SIGNAL
25	CASS	IN	CASSETTE SENSOR (SENSOR ON:L)
26	LSA	IN	MECHANISM MODE DETECT
27	LSB	IN	MECHANISM MODE DETECT
28	REC SF	IN	REC SAFETY SW DETECT (SW ON:L)
29	END SENS	IN	TRAILER TAPE DETECT(DETECT ON:L)
30	CAP REV	OUT	CAPSTAN MOTOR CONTROL (FWD:H/REV:L)
31	H SEL	OUT	HEAD SELECT CONTROL(SP:L/LP:M/EP:H)
32	A/M/S	OUT	PRE/REC CIRCUIT CONTROL(AUTO:M/MANUAL:H/S&S:L)
33	REC ST	OUT	REC START:H
34	REC	OUT	REC MODE:H
35	LCM1	OUT	LOADING MOTOR DRIVE(1)
36	LCM2	OUT	LOADING MOTOR DRIVE(2)
37	F.E H CTL	-	NC
38	P.CTL	OUT	POWER CONTROL(POWER ON:H)
39	V-UP	OUT	MOTOR DRIVE VOLTAGE SELECT (M17V:H)
40	PB(H)/PB(L)	IN	PB MODE:H(RF CONV ON/OFF CONTROL)

Table 6-1-1-A SYSCON CPU pin function (1/2)

6.1.2 Syscon CPU pin function (IC601) 2/2

PIN NO.	LABEL	IN/OUT	NOTE
41	STL	IN	SHUTTLE SWITCH
42	I2C DATA	OUT	NICAM CTL DATA OUTPUT
43	I2C CLK	OUT	NICAM DATA TRANSFER CLOCK
44	H REC ST(L)	OUT	HiFi AUDIO REC START:L
45	VPCTL	OUT	V.PULSE ADDITION TIMING CONTROL
46	DEM MUTE(H)	OUT	DEMOD CIRCUIT MUTE:H
47	JSA	IN	JOG PULSE INPUT(A)
48	JSB	IN	JOG PULSE INPUT(B)
49	EXP DATA	OUT	ABIT EXP DATA for CH PLS CONTROL
50	RC IN	IN	REMOTE CONTROL DATA INPUT
51	YNR ON	OUT	PICTURE CONTROL (YNR CTL:L)
52	CTL P	IN	CTL PULSE INPUT(MODE DETECT/BLANK PORTION DET)
53	AI DATA	OUT	AUDIO CONTROL DATA OUTPUT
54	AI CLK	OUT	AUDIO DATA TRANSFER CLOCK
55	SERVO	OUT	CAPSTAN MOTOR CONTROL(SERVO:L/MECHACON:H)
56	PAUSE	OUT	CAPSTAN MOTOR CONTROL(PAUSE:L)
57	S-OUT	OUT	ON SCREEN CONTROL DATA
58	S-IN	IN	ON SCREEN /FDP CONTROL DATA
59	S-CLK	OUT	DATA TRANSFER CLOCK
60	SERVO DATA	OUT	SERVO IC CONTROL DATA
61	STB	OUT	CLOCK OUTPUT PERMISSION
62	SERVO CLK	OUT	DATA TRANSFER CLOCK
63	VCC	-	SYSTEM POWER
64	A.MUTE	OUT	AUDIO MUTE CONTROL(MUTE ON:H)
65	DUTY I/O	IN/OUT	IN/OUT INDEX DATA CONTROL
66	ND	IN	NORMAL AUDIO DETECT (NORMAL AUDIO:L)
67	CTL CLOCK	IN	INDEX CONTROL
68	AV2/CH+	IN	AV2 CONNECTOR SELECT
69	CAP FG	IN	TAPE SPEED DETECT/BACK SPACE COUNT
70	CH DATA	-	NC
71	D.FF	IN	DRUM ROTATION DETECT/REC TIMING CONTROL
72	AVCC	-	SYSTEM POWER(for ANALOG)
73	PAUSE IN	IN	PAUSE CONTROL(PAUSE ON:L)
74	SCR	IN	NC
75	DRUM V	OUT	DRUM MOTOR CONTROL
76	CAP V	OUT	CAPSTAN MOTOR CONTROL
77	D.V.DET	IN	DRUM VOLTAGE DETECT
78	A.LEVEL L	IN	AUDIO INDICATOR LEVEL INPUT (Lch)
79	A.LEVEL R	IN	AUDIO INDICATOR LEVEL INPUT (Rch)
80	START SENS.	IN	LEADER TAPE DETECT(DETECT ON:L)

Table 6-1-1-B SYSCON CPU pin function (2/2)